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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Chemical Industry Conferences

FOR the Chemical Industry Conferences which begin in London at the end of next week and continue until the following Tuesday, a comprehensive and practical programme has been arranged, more than sufficient to compensate for the transference of the ordinary annual meeting to New York in September. These conferences, in addition to providing an excellent compensation for the loss of the official annual meeting, are designed to demonstrate the progressive character of the British chemical industry and are described as a response to the friendly challenge of Lord Balfour in his Messel Memorial Lecture to the Society of Chemical Industry in July of 1926. The organisation is in the hands of the Society of Chemical Industry, in co-operation with its London Section, the Chemical Engineering Group, and the Institution of Chemical Engineers.

The programme will open with the annual meeting of that very vigorous body, the Chemical Engineering Group, at the Gobelins Restaurant on the evening of Friday, May 11, to be supplemented by the annual dinner, presided over by Mr. H. Talbot, and by an address by Mr. F. H. Carr on "Some Chemical Engineering Aspects of the Fine Chemical Industry." Saturday will be spent in a visit to the Rothamsted Experimental Station at Harpenden, and on Sunday there will be a party for members in the gardens of the Zoological Society in Regent's Park.

Monday, May 14, will be fully occupied with conferences in the hall of the Institution of Civil Engineers. At the morning session, presided over by Sir Hugo Hirst, Sir Arthur Duckham will speak on the work of the chemical engineer in its bearing on the future of our fuel industries, and Dr. G. T. Morgan is expected to describe some interesting results of the chemical study of low-temperature tar. At the afternoon session, presided over by Lord Desborough, there will be contributions from Sir Alexander Houston on "Water Purification" and from Mr. J. H. Coste on "Pollution of Tidal and Non-Tidal Streams." The annual dinner at the Connaught Rooms in the evening, preceded by a reception by the President of the Society and Mrs. Carr, promises to be a fully representative gathering, with good speaking. Sir Philip Cunliffe-Lister, President of the Board of Trade, has consented to propose the toast of "British Chemical Industry," and Sir Alfred Mond and Sir D. Milne Watson will no doubt have something worth hearing to say in reply.

The closing day, Tuesday, May 15, will also be occupied by conferences in the same hall. At the morning session, Sir Alfred Mond will deal with a subject on which no one could speak with higher authority, "Scientific Research as Applied to Industry," and Sir John Russell, selecting a subject of which he is equally a master, will describe "The Part Played by British Workers in the Application of Fixed Nitrogen to the Soil." At the afternoon session, appropriately presided over by Lord Bledisloe, Colonel G. P. Pollitt will bring the conference to a close with an address on "Developments in the Heavy Chemical Industry"—which, one may be sure, will include some references to the great achievements at Billingham, with which he has been so closely associated. If his address is as good as that which he delivered during the Edinburgh meetings on the same subject, members will be well advised not to miss it.

A Prize Competition

AN account is given on another page, of a competition organised by the National Association of Olive Growers of Spain with regard to the analysis of olive oil. The prizes total nearly £900, the first being 20,000 pesetas (about £680) and the second 5,000 pesetas (about £170). Though chemistry now yields many rewards, it is unusual for the rare and refreshing fruits of success to be offered so directly to the chemist. The Russian Government (with boundless optimism) some time ago advertised the offer of prizes for the production of synthetic rubber, and in this country a prize was recently offered for a method of detecting carbon monoxide in coal mines. In the present instance, the demands made on competitors are considerable. Generally speaking, problems such as that now raised

are dealt with in this country by associations of various kinds, who appoint or subsidise chemists to make special investigations.

The examination of olive oil with regard to the numerous points raised in the conditions of the competition would entail a great deal of work, and as the closing date is July 30, there are likely to be few chemists (other than those, if there are any, who belong to the more or less leisured class) who will be able to put their other work aside in order to enter. Incidentally, it may be observed that references made to "cracking," etc., indicate that the growers have in mind uses for olive oil very different from those with which it has hitherto been associated. It will be interesting to see how the competition is received in chemical circles.

Progress in Chemical Flotation

CONSUMPTION of oils and reagents in the flotation of minerals in the United States in 1926 amounted to 201,711,795 lb., we learn from the Bureau of Mines. This represents a large increase over the 1925 figure, which was 81,666,967 lb. The equivalent in lb. of reagent used per ton of ore for 1926 was 3.963, as compared with 1.7952 for 1925. This increase is due largely to the amount of lime which is added in the alkaline circuits, particularly in the mills treating copper ores. The total quantity of ore reported as being treated by flotation in 1926 was 50,889,254 tons, from which 3,353,120 tons of concentrates were obtained. The total number of companies reporting to the Bureau was 145, whose outputs represent probably 98 or 99 per cent. of the total tonnage of ores treated in the United States. Copper ores made up the great bulk of the tonnage treated by flotation, but the others treated included lead-zinc-iron ores, lead ores, zinc and lead-zinc ores, silver-lead, gold-silver, lead-copper-silver, and miscellaneous ores. Lime constituted the great bulk of the reagents used, amounting to 162,240,359 lb. in a total of 201,711,795 lb. of all classes. Other reagents used in large quantities were sodium sulphide, pine oil, sulphuric acid, xanthate, copper sulphate, soda ash, refined hardwood creosote, refined coal-tar creosote, and cement. Smaller quantities of water gas tar, ammonial distillate, coal tar, sodium silicate, cresylic acid, crude oils, T. and T. mixture, zinc sulphate, cyanide, N.T.U. oil, sodium carbonate, reconstructed oils, thiocarbanilide, sodium sulphite, A. T., X-Y mixture, and orthotoluidine were used.

In the past, flotation has been referred to generally as "oil flotation"; to-day it might be more properly called "chemical flotation," since minerals can be floated to-day without oil. Chemicals alone will perform the work, showing how little was truly known about the process previously. The term "reagents," as used by the Bureau, includes both chemicals and oils. In order to counteract objectionable soluble materials present either in the ore or in the mill water, modifying reagents are used to "condition the pulp," and by neutralisation prevent interference. Reagents of this type are soda ash, sodium silicate, sodium sulphite, crude soda, lime and acids. The relative floatability under a standard set of conditions has been determined for most sulphide minerals, as well as for some of the more common gangue constituents such as silica, siliceous materials free from mineral, calcite, limestone and others. Chemicals seem to have a positive action on minerals and a different action on each, and it is this fact that is taken advantage of in differential flotation work. Different oils have a slightly different action on the flotation of different minerals, and thus assist the chemicals. The terms "sinking" or "dropping" of minerals are now common in flotation plants, which means that chemicals and oils are added to the flotation pulps to depress the undesirable floatable minerals and raise the desirable ones. For instance, galena can be floated away from sphalerite and pyrite under proper conditioning of the pulp and addition of suitable flotation reagents. In turn, certain chemicals and oils can be added which remove the depressing action of the first reagents and render the sphalerite amenable to flotation, thereby leaving the pyrite behind. Other reagents can be added to float the pyrite from the gangue material. The ratio of concentration in flotation is comparatively high, because high-grade products are constantly being obtained more free from undesirable minerals and gangue than was formerly the case. This interesting subject is treated in detail in Serial 2852, *Consumption of Reagents Used in Flotation*, 1926, copies of which, we are informed, may be obtained from the United States Bureau of Mines, Department of Commerce, Washington, D.C.

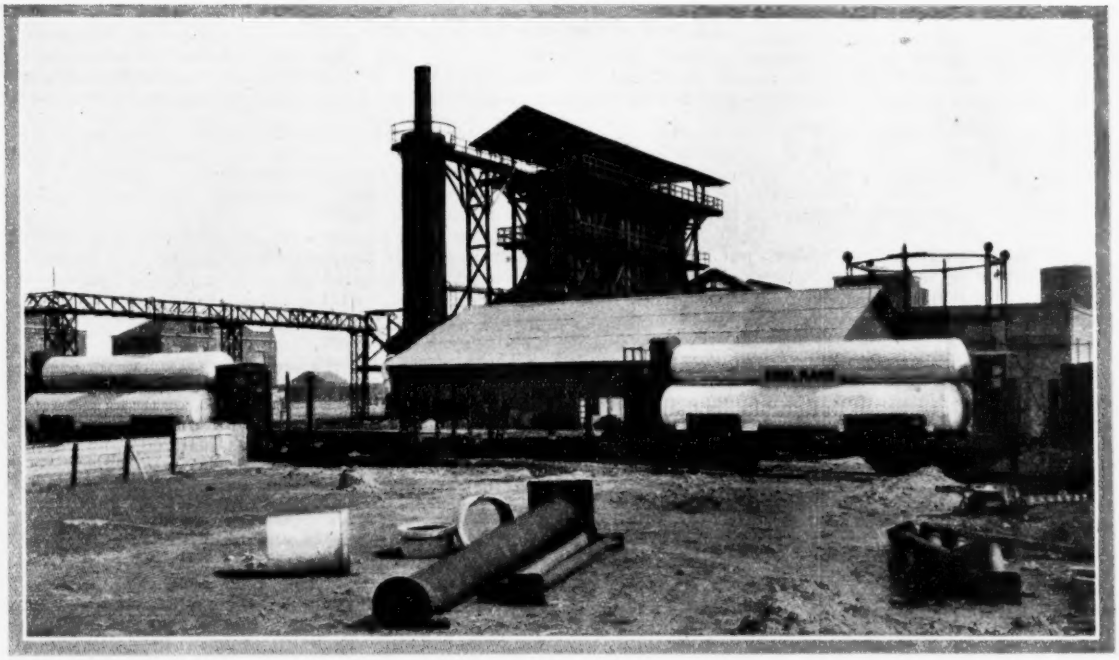
Books Received

THE MINERAL INDUSTRY OF THE BRITISH EMPIRE AND FOREIGN COUNTRIES. DIATOMACEOUS EARTH. Imperial Institute. London: H.M. Stationery Office. Pp. 56. 1s.

A COMPREHENSIVE SURVEY OF STARCH CHEMISTRY. Compiled and edited by Robert P. Walton. New York: The Chemical Catalog Co., Inc. Pp. 360. $10.00.

The Calendar

May		
8	Institute of Metals: Annual May Lecture. "The Chemical Properties of Crystals." Professor Cecil H. Desch. 8 p.m.	Storey's Gate, London, S.W.1.
8	Institution of Petroleum Technologists. 5.30 p.m.	John Street, Adelphi, London.
8–18	Society of Chemical Industry: Seven Lectures on Electro-Chemistry by Professor Fichter. 5.30 p.m.	University, Birmingham.
8	Royal Photographic Society. 7 p.m.	London.
9	Institute of Fuel: "The Engineer in Industry." A. J. T. Taylor. 6 p.m.	Burlington House, London.
10	The Optical Society: Ordinary Meeting. 7.30 p.m.	Imperial College, London.
10	Oil and Colour Chemists' Association: Annual General Meeting. "Nitrocellulose Lacquers." H. Hepworth. 7.15 p.m.	30, Russell Square, London.
11	Physical Society. 5 p.m.	Imperial College, London.
11	Chemical Engineering Group. Annual General Meeting and Dinner. "Some Chemical Engineering Aspects of the Fine Chemical Industry." F. H. Carr.	London.
11	Chemical Industry Conference: Chemical Engineering Group. Annual General Meeting and Dinner. "Some Chemical Engineering Aspects of the Fine Chemical Industry." F. H. Carr. 6 p.m.	Les Gobelins Restaurant, Regent Street, London.
12	Bio-chemical Society. Inspection of the new Bio-chemical Department at the University. 11.45 a.m.	Birmingham.
12	Visit to the Rothamsted Experimental Station, Harpenden. 9.30 a.m.	
13	Visit to the Gardens of the Zoological Society, Regent's Park	London.



Types of French Chemical Plant

THE VIEWS ON THIS PAGE ARE TAKEN FROM A COMMEMORATIVE CENTENARY VOLUME PUBLISHED BY THE WELL-KNOWN FRENCH FIRM, ÉTABLISSEMENTS KUHLMANN. THE UPPER ILLUSTRATION SHOWS A SYNTHETIC NITRIC ACID PLANT AT LA MADELEINE; THE LOWER, A SULPHURIC ACID PLANT AT CASABLANCA.

International Competition on Analysis of Olive Oil

25,000 Pesetas in Prizes

The National Association of Olive Growers of Spain, of Alcala 87, mod2, Madrid, Spain, has organised a competition, having as its object the production of a short treatise on methods for the differentiation of pure olive oil from adulterated mixtures. Details (circulated by the Department of Scientific and Industrial Research on receipt from the Spanish Ambassador) are given below.

THE object of this competition, states the official memorandum, is to gather, into a short treatise, physico-chemical knowledge and practice to serve as a basis for the differentiation between pure olive oil and any other which might be a mixture, and to determine the nature of the constituents in such cases, and the quantity of each.

The idea of this study is to be able to put into the hands of those practised in analysis and chemical operations, the safest possible methods, expressed in a clear and precise form, after having been duly proved.

Methods of Analysis

The special characteristics regarding methods of analysis as proposed are :—

First.—Absolute confidence and reliance in the result, as the various classes of oils which could be mixed might be of very similar chemical nature. Since the analyses of pure olive oils from different sources show differences, the accuracy of the result of an analysis is made decidedly more difficult.

Second.—The simplicity of the analytical process ; a rapid and simple process of analysis, giving the same degree of exactitude as a more complicated one, is far worthier of reward.

During centuries, systems of extraction have been used, except in rare cases, which only differed in the degree of perfection of the instruments used. It may be taken for granted that what can be gleaned from experience has already been learnt. To advance new methods, or perfect the present technique of the olive industry, it is necessary to establish the fundamental principles of the system of cells of the olive which elaborates the oil, its variation during the different periods of ripening and, if possible, a study of the formation of essential oils and colouring substances should be made, as also of the diastases which accompany the oils of the olive.

Olive oil is known to be a highly colloidal substance, capable of forming emulsions in which it or another liquid may be the supporter, and yet form an emulsion on a solid nucleus, as basis of the centrifugal processes for the separating of olive oils and juices ; in regard to the purification of them and their ultrafiltration, a chapter should be devoted to the colloidal chemistry of olive oils. In the quality of the oils the formation of fatty acids plays an important part ; thus the study of the spreading out of the ethers, or triglycerides, by hydrolysis in presence of fermenting agents, either of the olive, or otherwise, is very useful, not only to ensure good elaboration, but also for conservation of olive oils.

The "Cracking" of the Oil

As complement, although some of these studies may be at the moment only for scientific curiosity, this monograph should embrace the study of " cracking " for the obtaining of petrol and derivatives of benzine and olive oil aromatics in presence of catalytic agents ; as to the vitamins in olive oils, a brief study should be made to ascertain the quantities present, their class, and their beneficial influence upon the human organism.

Micro-chemical analysis, as also spectrographical, might be applied to the study of olive oils and their mixtures.

In the foregoing observations is given a brief indication of to what, at the least, competitors must conform. The total number of points obtainable by a competitor is 100 ; of these, 15 are for the monograph and 85 for the analysis (second, third and fourth subjects).

Index to the Subjects

First subject : Monograph (15 points).—Chemical definition of olive oil, using the previous terminology and that of the Geneva Congress. Study of the physico-chemical properties of the same on which are based the coefficients of saponification, acidity, iodine content, congelation, refraction, fusion, etc. Detailed explanation of the determination of each one of the coefficients ; comparative table of these coefficients with those of oils of vegetable origin ; hydrolysis of olive oil ; formation of fatty acids, of aldehydes, of glycerines, fermenting agents and diastases ; colloidal chemistry of the olive oil ; its emulsions, de-emulsionising agents ; centrifuging ; ultra-filtration ; " cracking ;" vitamins ; micro-chemical analysis ; spectrographical analysis.

Second subject : Analysis of olive oil (50 points).—(*a*) Determination of the mixture of olive oil with another, either of mineral or animal origin (5 points).—(*b*) Determination of the mixture of olive oil with an oil of vegetable origin (oil of peanut, colza, sesame, cotton, poppy, linseed, castor, copra, palm, maize, sunflower, soya, etc.) (45 points).

Third subject : Differentiation between two olive oils of the same origin, one of which has undergone regeneration, or the mixture of the two (20 points).

Fourth subject : Differentiation between a regenerated olive oil and another of the same class derived from olive refuse, although the stony element may have been separated, as also that of the mixture between pure or regenerated oils, and those proceeding from olive refuse (15 points).

Prizes and Conditions

First prize, 20,000 pesetas. (About £680.)
Second prize, 5,000 pesetas. (About £170.)

Works accepted in principle by the judging committee carry the right of an indemnification of 250 pesetas, in the event that, having made a journey to demonstrate before the said committee, the competitor should not receive a prize. In the case that a work be not accepted by the judging committee and the competitor desires to give a practical demonstration, he would have no right to indemnification.

The second, third, and fourth subjects require demonstration in the laboratory, the mixture to be analysed to be supplied by the judging committee, as also laboratory materials, should these not be out of the ordinary ; the demonstration may be made by the competitor himself or by a person fully authorised by him and satisfactory to the judging committee ; only the reactions and methods expressed in his written work being employed, which by the fact of his taking part in this competition is to be considered as the property of the National Association of Olive Growers of Spain.

The olive oils which are to serve as the base for the mixtures by the judging committee will be of national origin, although those procured may be of the most extreme types. The compounds given for analysis will contain at least 10 per cent. of oil of one or different classes mixed with them, but the proportion of the components will never be less than 5 per cent.

To obtain the first prize, it will be essential for the competitor to obtain more than 60 points, or to obtain the 50 points for the second subject by completely solving it ; and 15 for the second prize, one being able, if it is so desired, to embrace all the subjects or those voluntary chosen ; but to appropriate the prizes the number of points indicated will be necessary. Should no competitor reach 50 points for the first prize, it will be divided into four prizes of 5,000 pesetas, all of the same category, and will be adjudicated to those who may have been judged to have obtained more than 15 points, although on the same subject, it being understood that the processes used be completely different works.

Judging Committee

The judging committee will be composed of a representative of the National Association of Olive Growers, another of the National Federation of Exporters of Spanish Olive Oil, another of the Body of Customs' Experts attached to the Central Laboratory, a Professor of the Faculty of Science of the Central University, and an Agricultural Engineer, the judging committee to be presided over by the first-named. The last date upon which works may be presented will be July 30, and they should be handed in to the Secretary's Office of the Olive Growers Association and a receipt obtained. Each competitor in analytical subjects should include a list of the necessary laboratory materials for his demonstrations.

Lead Tetraethyl Inquiry Begun

American Evidence

THE committee appointed by the Minister of Health to inquire into the possible dangers to health, resulting from the use of motor spirit containing lead tetraethyl, or similar lead-containing compounds, began its investigations on Monday, at the Office of Works, London. Sir Frederick Willis is chairman of the committee, and the other members are Sir George Buchanan, Dr. J. C. Bridge, Mr. D. R. Pye, Sir Charles Martin, Sir Robert Robertson, Major W. R. Galway, Dr. C. H. Lander, Mr. A. Chaston Chapman, Sir William Willcox, and Professor W. E. Dixon.

The first witness was Dr. Graham Edgar, director of research to the Ethyl Gasoline Corporation, New York. Dr. Edgar said that the Ethyl Gasoline Corporation had endeavoured to determine the facts concerning all phases of the use of lead tetraethyl in motor spirit, and had placed the full results of its researches at the disposal of the Committee. In 1924, at works in Bayway, New Jersey, there were five fatalities and a number of cases of poisoning among men engaged in developing a new process for the manufacture of lead tetraethyl. The tragedies had nothing to do with ethyl gasoline, though its confusion with lead tetraethyl persisted in many quarters.

Careful Investigations

In connection with the exhaust-gas problem, the United States Bureau of Mines exposed animals from three to six hours per day to exhaust gases from an engine burning ethyl gasoline. Results showed no storage of lead nor symptoms of poisoning, after a period of eight months. In tests on human beings, different groups of men had been exposed as severely as possible to the use of ethyl gasoline in one way or another. Similar groups of men who had not used ethyl gasoline in any way, had been taken as controls. These groups of men had then been subjected to the most rigid and searching medical examination, and it was established that no individual person in any of the groups gave evidence of lead poisoning, or any other injury to health, resulting in any way from ethyl gasoline.

Mr. A. M. Maxwell, vice-president and sales manager of the Ethyl Gasoline Corporation, stated that last year the corporation, which supplied tetraethyl to 36 of the major oil companies, did not receive a single complaint of damage to health from users. Mr. H. S. Tegner, of the Anglo-American Oil Co., who retailed Pratt's spirit, said that they had encountered no indication that the handling of ethyl petrol produced deleterious effects to the worker, the motor-car user, or the public generally.

Mr. Pye, of the Air Ministry, said that exhaustive experiments had been carried out in the laboratory, in bench tests, and during long evolutions of two squadrons. At no time had there been any report of illness among the *personnel* handling ethyl spirit. In high-speed aero engines, the proportion of tetraethyl used in the petrol was often considerably higher than in mixtures sold commercially.

Dr. Bridge, of the Home Office, said the Anglo-American Co. fully consulted the Home Office before they put ethyl spirit on the market.

The inquiry was adjourned.

Hydrocarbon Oils

Details of the New Customs Duty

A NOTICE by the Commissioners of Customs and Excise indicates, with regard to the duty on petrol, etc., that a resolution introduced into the House of Commons on April 24 provides for the imposition, as from April 24, of a Customs duty of fourpence per gallon on all petroleum oils, coal tar, and oils produced from coal, shale, peat or bituminous substances, and all liquid hydrocarbons. The resolution provides for a rebate equal to the full duty on such of these oils as are not liquid hydrocarbons having 40 per cent. or more than 40 per cent. distilling at a temperature not exceeding 235° C. (referred to as light hydrocarbon oils) except in cases where they are intended for treatment in a refinery. In pursuance of Section 7, Finance Act, 1901, imported goods (*e.g.*, paints, varnishes, etc.), containing dutiable oils will be liable to duty on the quantity of such oils used in their manufacture.

Honour for Sir Robert Hadfield

Elected to National Academy of Sciences of U.S.

SIR ROBERT HADFIELD, F.R.S., has been elected a Foreign Associate of the National Academy of Sciences, Washington, D.C., an honour at present held by only ten Englishmen and eight others. The honour has not been conferred on an Englishman since 1926, when Sir Frank Dyson, the Astronomer Royal, was elected. Among other living Foreign Associates are Professor Einstein, Sir E. Ray Lankester, Sir Charles Parsons, and Sir Ernest Rutherford. The National Academy of Sciences has 225 living members, all of them distinguished in some department of science, and is in many ways the equivalent in the United States of the Royal Society. Sir Robert Hadfield is head of the vast establishment at Sheffield

SIR ROBERT HADFIELD, BT., F.R.S.

which bears his name, and a distinguished scientist, whose discoveries in ferro-alloys created a new era in the manufacture of steel. In 1904 he received the Bessemer Gold Medal of the Iron and Steel Institute for his discovery of manganese steel, on which he had spent ten years in research. Manganese steel is used for all purposes requiring strength and hardness. Sir Robert has been awarded many honours, including the Cross of the Legion of Honour, the Telford Gold Medal, and the John Fritz Medal, the highest prize of the kind that America can offer.

I.G. Directors' Report

General Increase of Business

IN their annual report for 1927, the directors of the I. G. state that in the dyestuffs field, in spite of the sharp competition, their sales have greatly increased. The unification of foreign sales agencies carried out at the end of 1926 had a favourable result. During 1927, the I. G. introduced 152 new dyestuffs and products for the dyeing industry. There was a satisfactory increase in sales of caustic soda, chlorine products, lithopone, and inorganic products generally. The use of magnesium alloys (Electron metal) in flying and transport has greatly increased, and in order to fulfil the demand a new plant is being erected. The sale of nitrocellulose lacquers is increasing steadily. A group of new pharmaceutical preparations has had a favourable reception, and special mention is made of Plasmochin, Vigantol (vitamin D), Compral (for relieving pain), and Novonal (hynotic). Business in artificial silk has shown a marked expansion.

In fertilisers, sales developed satisfactorily, chief increases being shown by Leuna saltpetre, lime saltpetre, and Nitrophoska. For a time, the demand for the various grades of the latter exceeded the supply. The production capacity of I. G. plants for synthetic nitrogen compounds is equivalent to 700,000 tons of nitrogen annually. Reference is made to the fact that difficulties which arose in the coal liquefaction processes have been overcome. The production of benzine from coal is increasing, and finds a ready sale. Employees of the I. G. number 143,000.

German Nitrogen War?

I.G. and the Ruhr Chemical Corporation

THE formation of the Ruhr Chemical Corporation (discussed in the last issue of THE CHEMICAL AGE) is analysed by a correspondent of the *Financial News* in detail, as follows:—

"The creation of the Ruhr Chemical Corporation, which is to be initially financed by a $4,000,000 loan in New York, is an important event in the chemical fertiliser world. The Ruhr heavy coal industry has previously supplied coal to the I.G. Farbenindustrie for the manufacture of synthetic nitrogen. It now intends to do its manufacturing for itself through the agency of the new company. One coal company, the Mont Cenis, has been using its coke-oven gas on a moderate scale for synthetic nitrogen compounds during the last two years. Another, the Concordia, has been carrying on research for sixteen years and experimental production for the last four. Both use the Casale Concordia-Linde nitrogen fixation patents. With these examples, 27 leading Ruhr coal companies have now formed the Ruhr Chemical Corporation and started to produce synthetic nitrogen compounds on a large scale.

"This new departure will bring the Ruhr heavy industry into direct conflict with the I.G., the German chemical trust, if they do not agree on a common policy. Both groups are powerful enough to wage an intense price-cutting war, and several sharp skirmishes at the beginning made a conflict seem likely. The I.G. obtains part of its raw materials from the air, and another important part from the lignite and minerals under and near its works, but it has had to buy Ruhr coal and coke in large quantities, and these were for years its largest single item of expense. But a couple of years ago the company made a bid for freedom from the Ruhr heavy industry, acquiring interests in several Ruhr anthracite mining companies. A second blow to the Ruhr coal companies came recently when the I.G. managed to shift from the consumption of anthracite and coke to lignite. Of this the I.G. has reserves for eighty years, and it is now using it not only for heating, but also for disintegrating and extracting the gases for fertiliser. Thus the Ruhr coal companies found a new competitor in coal production and virtually lost their best customer.

Unsuccessful Litigation

"The I.G.'s patent position has weakened lately. Last year they took action against the Mont Cenis, a Ruhr synthetic fertiliser company, but lost. This decision gave the Ruhr Chemical Products Corporation a secure position in using a similar process, and Ruhr Chemicals now owns the Concordia-Linde patents used by Mont Cenis. The I.G.'s position has been further weakened by the lapsing of the basic Haber patent. Companies in various parts of the world, and notably in the United States, are starting fertiliser production on Haber lines, and the I.G. can no longer challenge them. The Ruhr coal companies, with a synthetic nitrogen compound industry of their own, are well placed to produce at low costs. The 27 companies in the Ruhr Chemical Corporation own enough coal to meet their needs for the next four hundred years. They have enough coke-oven gas to provide hydrogen for twice the amount of synthetic nitrogen compounds produced in the world to-day, and to use it on the spot will save in transport costs.

Coke-Oven Advantage

"Further, the principal raw material for nitrogen production, hydrogen, need cost Ruhr Chemicals very little. At present they use about half their coke-oven gas for heating. This same gas can go to Ruhr Chemicals first, have the hydrogen extracted, and then be returned to the ovens with enhanced heating value. The Ruhr Chemicals people can also operate with a comparatively small capital expenditure on plant. Their first unit at Holton will cost them about £1,200,000, and others can be erected at much the same cost. The Casale-Concordia-Linde process on coke-gas requires less plant than the Haber Bosch process, for it entails no preliminary disintegration of the fuel, while the gases come out cleaner from the low temperature process than from the Haber Bosch process. This eliminates the need for gigantic washing installations. In spite of these facts, a trade war between the Ruhr heavy industry and the I.G. is unlikely. The low per capita consumption in many countries, which in the future will be among the largest users, suggests that the market will be large enough for everyone. Thus, while agriculturally advanced countries like Holland and Belgium each use about 45 kilos of nitrogen per hectare a year, Germany only used about 11·7 in 1925-1926, and could use twice as much. The United States, one of the largest future users, at present uses but 2 kilos per hectare. Despite increases in production, German experts estimate that world markets will take as much as produced, at least for the next five years.

Cost of Price-cutting

"In addition, a price-cutting war would prove extremely costly. The I.G. is producing about 600,000 tons of nitrogen this year. A cut of 10 pfennigs a kilo would mean a 60,000,000 marks reduction in gross revenue. A 20 pfennig cut would be the equivalent of the I.G.'s last dividend. This is a very tangible reason for harmony within the Synthetic Nitrate Syndicate, to which both belong. [It may be added that the Synthetic Nitrate Syndicate will market the products of the new corporation.—ED., *C.A.*]

"At the present market price levels, nitrogen compounds give the chemical industry the bulk of its profits. Cost calculating is highly intricate because the gases can be used for a wide range of products. In the Ruhr the coke gas that gives 50 per cent. of hydrogen also can provide 25 per cent. of methane and 2½ per cent. of ethane. Yet it is widely believed that I.G. produces nitrogen compounds that sell in the market at 90 pfennigs at substantially lower cost. Probably the Ruhr Chemicals Corporation can produce fertilisers equally cheaply. A war between them would thus be of uncertain outcome, while it would destroy their present margin of profit."

Merchandise Marks Act Application

Scientific, Domestic and Illuminating Glassware, etc.

THE Board of Trade have referred to the Standing Committee an application for the marking, with an indication of origin, of the following descriptions of imported goods: Domestic, fancy, and illuminating blown glass-ware of all descriptions (other than electric lamp bulbs); pressed glassware of all descriptions; bottles, jars and other containers of glass; lampblown ware and scientific glassware of all descriptions, including tubing and rod. The Committee will consider whether these articles should be marked on sale or exposure for sale, and they may, at their discretion, also consider whether the articles should be marked on importation. The date of the Committee's public enquiry will be announced later, and communications should be addressed to the secretary, Mr. E. W. Reardon, Board of Trade, Great George Street, London, S.W.1, as early as possible and, in any case, not later than May 25, 1928. The reference is published in full in the *Board of Trade Journal* of May 3 and in the London, Edinburgh, and Belfast *Gazettes* of May 4.

U.S. Fluorspar Industry in 1927

THE salient features of the U.S. fluorspar industry in 1927, as shown by a statement prepared by Hubert W. Davis, of the United States Bureau of Mines, Department of Commerce, are the decrease in domestic shipments, which for the fifth consecutive year recorded a decline; the pronounced increase in the imports from Germany and the equally pronounced decrease in the imports from the United Kingdom; the large stocks of fluorspar at consumers' plants on December 31, 1927, especially the stocks of 85,000 tons that have been accumulated at basic open-hearth steel plants; and the increase in producers' stock-piles, which are also the largest ever accumulated. The total imports of fluorspar into the United States in 1927, amounting to 71,515 short tons, represent a decrease of 5 per cent. from the record year 1926, but are the second largest ever recorded. The imports in 1927 are equivalent to 64 per cent. of the total shipments of domestic fluorspar, as compared with 59 per cent. in 1926. The United Kingdom, which has been the chief source of the imported fluorspar, supplied only 26 per cent. of the total in 1927, the imports of 18,449 tons therefrom representing a decrease of 37 per cent. Germany was the chief source of imports in 1927, supplying 45 per cent. of the total. The imports from Germany in 1927 were 56 per cent. more than in 1926. France was the only other source from which more fluorspar was imported in 1927 than in 1926.

Condensation of Hydrocarbons

Action of Electrical Discharge : Industrial Possibilities

In a paper read before the petroleum section of the American Chemical Society at a recent meeting, Drs. S C. Lind and G. Glockler pointed out that for more than 50 years it had been known that gases showed chemical change in electrical discharge, even when there was no explosive reaction. The hydrocarbons reacted in silent and spark discharges, liberating hydrogen and methane and giving liquid and sometimes solid products. The unsaturated reacted faster than the saturated compounds and liberated less gas.

Until recently, but little attention had been paid to the theory or mechanism of these reactions and none to their possible uses. Similar reactions took place in alpha radiation under conditions favourable to fundamental study. It had been found for all hydrocarbons examined (methane, ethane, propane, butane) with alpha rays, that two molecules reacted per ion-pair, eliminating hydrogen or methane and forming higher gaseous and also liquid and sometimes solid members. The large variety of molecular species formed from one initial kind of low molecular weight suggested that continued doubling redoubling, and " cross-breeding " took place readily according to the general law, two molecules condensing for each one ionised. In the case of saturated compounds, elimination of hydrogen or methane was necessary to furnish free bonds for doubling. For unsaturated this was not necessary, but some like action, nevertheless, did occur in ethylene. In acetylene, condensation was direct to solid (cuprene), with very slight liberation of hydrogen.

Mechanism of the Reaction

The object of the work was to find whether the mechanism suggested for the alpha ray results seemed applicable in electrical discharge. If due to ions, the reaction must be similar, no matter how the ions were produced. One important criterion was unfortunately lacking ; since one did not know the quantity of ionisation produced in electrical discharge, the yield of products per ion-pair remained unknown. The indirect evidence obtained in the reaction of ethane under silent discharge gave the following supports to an analogous mechanism : (1) Condensation to liquid hydrocarbons took place ; (2) hydrogen and methane were produced and in approximately the same ratio (5/1 molecules) as under alpha radiation ; (3) the liquid product had the same empirical formula $C_n H_{1\cdot8n}$.

Other types of electrical discharge such as alternating corona (metal to glass, metal to metal, and high frequency) gave similar products. In the case of disruptive discharge, free carbon appeared, but not in silent discharge as in the ozonizer. A yellow solid was formed on the walls in semi-corona aluminium rod discharge, which was quite inert.

Nature of the Products

The first liquid obtained in the ozonizer type of apparatus was of high average mol. wt. (467) and quite viscous, with a turpentine-like odour. Since the liquid first condensed on the glass wall, and was hence subjected to considerable secondary action of the discharge passing through it to reach the other electrode, and also since higher gaseous products returning to the discharge chamber with the circulating ethane were subjected to further doubling, two means were adopted to prevent this ; firstly, by warming the walls of the discharge chamber to about 70° C. to prevent initial condensation of liquid, and secondly by inserting a cold trap (50° C.) in the circuit to prevent return of gases condensible at that temperature. The mol. wt. at once dropped from 467 to 180, and was later lowered in corona to 105, supporting the theory and showing a means of controlling the liquid product.

By starting with higher members, propane or butane, and operating a number of tubes in parallel it is expected to furnish liquid in sufficient quantity for fractionation and identification. A preliminary fractionation of a liquid of mol. wt. of about 130 gave a heavy fraction of 182 and a lower one of 81. The economics of the process do not yet appear favourable for obtaining liquid hydrocarbons for combustion purposes. The work of ionization appears too great per yield of liquid unless products of unusual value are obtained in this way. It is reported that efforts are being made in Germany to produce lubricating oil by means of brush discharge.

Chemical Matters in Parliament

Unemployment in the Chemical Industry

Mr. Kelly (House of Commons, April 25) asked for details of unemployment in the light and heavy chemical industries in 1926, 1927 and 1928. Mr. Betterton, in his reply, supplied figures which were quoted in The Chemical Age, April 28, and stated that separate figures were not available for the light and heavy branches of the industry. Mr. Kelly asked if, in view of the hon. gentleman's reply that there was such a number of unemployed persons, he could state in what districts the unemployed miners were placed in the chemical trade, as stated by the Minister of Labour.

Mr. Betterton : No ; not without notice.

Kerosene Tax

Mr. Churchill announced (House of Commons, May 1) that the duty on kerosene and paraffin would be dropped. The duty levied on the products of petroleum would remain. A resolution to this effect was agreed to.

Research Work on Explosives

In reply to Mr. C. Edwards (House of Commons, May 1) Commodore King stated that the Government Testing Station at Rotherham had to be closed down owing to the difficulty of obtaining supplies of suitable gas. Nobel Explosives, Ltd., allowed their testing gallery at Ardeer to be used temporarily by the Government testing officers without charge. The work would in future be carried out at the Buxton station of the Safety in Mines Research Board, where the general research work in connection with explosives was carried out.

Extraction of Oil from Coal

In reply to a question by Mr. Hardie (House of Commons, May 1) as to whether oil from the Bergius plant was a synthetic oil ; what was the quantity procured per ton ; whether the oil had been analysed and what were the results ; whether it differed from oil taken from coal by other processes ; and whether its production was likely to be cheaper than present practical and commercially proved plants, Commodore King stated that oil from the Bergius process was sometimes described as synthetic, and that the answer to the second, third and fourth parts of the question was that the quantity and nature of the oil produced varied with the coal used ; and, as to the fifth part, he had no information which would justify a prophecy.

Increase in the Price of Benzol

In answer to a question by Sir H. Lucas-Tooth (House of Commons, May 1) regarding an increase in the price of benzol, Mr. Churchill stated that imported benzol, or benzol derived from imported products was liable to the same duty as petrol, but if derived from indigenous products it was not dutiable. He understood that benzole mixture contained one-third benzol, so if all the benzol were duty free the duty per gallon would be 2⅜d. per gallon. Mr. Churchill stated that he set out to offer some encouragement to the production of home developed oils, including benzol, which was a most important subsidiary product of the scientific process with which progress was being made to extract oil from coal. He accepted as the basis of that policy that there should be an inducement to the consumer to buy, and the producer to produce, those commodities which were extracted from coal.

Appointments Vacant

Head of Department dealing with problems arising out of the use of artificial silk in conjunction with cotton, in the British Cotton Industry Research Association. Among the requirements is a knowledge of organic chemistry, and particularly the application of the methods of physical chemistry and chemical engineering thereto.—Also assistants in the department.—Dr. R. H. Pickard, F.R.S., Director of Research, Shirley Institute, Didsbury.

Head of Branch, an Assistant I, an Assistant II, and Junior Assistants (all males), for the Research Department, Directorate of Explosives Research, Woolwich.—The Chief Superintendent, Research Department, Woolwich, S.E.18.

Varnish Research Chemist.—The Walpamur Co., Ltd., Darwen, Lancs.

Wheat Chemist, for the Wheat Research Institute, New Zealand.—The High Commissioner for New Zealand, 415, Strand, London, W.C.2. June 30.

From Week to Week

AN ORDER FOR TWO MILES of corridor rubber flooring for the new building of Imperial Chemical Industries, Ltd., has been secured by Charles Macintosh and Co.

PROFESSOR S. C. LIND, of the University of Minnesota, has been elected a member of the International Radium Standards Commission, in succession to the late Professor B. B. Boltwood.

THE THIRTEENTH CONGRESS of the International Union of Chemist-Colourists will take place in Heidelburg, May 13–17. Further information may be obtained from the headquarters of the Union, Vienna IV, Wiednergürtel 52, Austria.

ORDERS totalling nearly a million pounds sterling have been secured by International Combustion, Ltd., London, from South Africa, The Hague, Shanghai, and from this country. The orders will be executed at the Derby works of the company.

SIR DAVID MILNE-WATSON, governor and managing director of the Gas Light and Coke Co., will be presented with his portrait by Sir William Orpen, R.A., at a gathering at Olympia on May 12 of 12,000 of the company's employees, who have subscribed towards the presentation.

THE RAMSAY MEMORIAL FELLOWSHIP TRUSTEES will, at the end of June, consider applications for British Fellowships for Chemical Research. Details may be obtained from the secretary of the Ramsay Memorial Fellowships Trust, University College, Gower Street, London, W.C.1.

SIR WILLIAM POPE, F.R.S., professor of chemistry in the University of Cambridge, will deliver two lectures on "Recent Progress in Stereochemistry" at the Imperial College of Science and Technology, South Kensington, London, S.W.7, on Fridays, May 18 and 25 at 5.30 p.m. Admission is free, without ticket.

PROFESSOR T. M. LOWRY, F.R.S., has been nominated for the presidency of the Faraday Society, which will hold its twenty-second annual general meeting in the rooms of the Chemical Society, Burlington House, London, on Wednesday, May 16, at 8 p.m. Professor C. H. Desch, F.R.S., will deliver his presidential address, entitled "Diffusion in Solids."

OWING to a printer's error, the following paragraph was omitted from the advertisement of Brown and Son (Alembic Works), Ltd., of 9, Wedmore Street, London, N.19, on page xiii of our issue of April 28: "Ovens and other Apparatus heated by Gas or Electricity and automatically controlled by Capsule or Thermostat regulators within half a degree Cent."

THE BRITISH CYANIDES CO., LTD., have accepted the resignation of Mr. S. T. Harman from the board. Mr. E. C. Rossiter has also resigned from the board in order to take his place on the Technical Committee. These vacancies have been filled by Mr. R. G. Perry and Mr. Samuel Whyte, who have also joined the Technical Committee which has been formed for the direction and control of research work.

A MANUFACTURING PLANT costing half a million dollars is, state Canadian reports, to be started in Toronto by the Waltheimer Paint and Varnish Corporation of London. Major R. Mellor, president and general manager, has been in Toronto looking over a number of sites, and will refer a number of options to his board on his return to Great Britain. He will return to Toronto in six weeks, when building operations will begin. The Harbour Board has offered Major Mellor one or two desirable sites.

SPEAKING AT THE ANNUAL DINNER of the Hospitallers' Club on Saturday, April 28, Major-General Sir P. S. Wilkinson, secretary-general of the Order of St. John of Jerusalen, referred to a book dealing with the amelioration of the effects of chemical warfare attacks on great cities, and said that the matter had seemed to him to be so important that he approached the Government on the subject and received a reply to the effect that it was hoped that members of the St. John Ambulance Brigade would be trained in the best methods of meeting such attacks. At the same time he was instructed to say that the Government was carefully examining the subject with a view to issuing authoritative instructions.

UNIVERSITY NEWS.—*Glasgow:* The degree of D.Sc. has been conferred on Dr. R. C. Smith for a thesis on "The Stability of Emulsions with additional Studies in Rates of Reaction."—*Nottingham:* The new buildings of University College will be opened by the King on July 10.—*London:* Mr. Harry Brindle has been appointed lecturer in pharmaceutics.—*Oxford:* Mr. E. H. M. Badger, of University College, is the successful candidate this year for the Goldsmiths' Co.'s exhibition for chemistry and physics.—*Hull:* The Duke of York, accompanied by the Duchess, laid the foundation stone of University College on Saturday, April 28.—*Cambridge:* At the Congregation on May 12 a Grace will be submitted that the Vice Chancellor, Sir H. A. Miers (Oxford), Dr. H. H. Thomas, Dr. L. J. Spencer, Dr. Rastall, Professor Sir W. J. Pope, Mr. H. Thirkill, Mr. T. C. Nicholas, and Mr. E. K. Rideal be appointed a syndicate to consider the position of mineralogy in the studies of the University, and to report to the University by the end of the coming Michaelmas term.

RUMOURS are afoot, states the Parliamentary correspondent of the *Daily Telegraph*, that at no distant date—probably in the course of the next month—Sir Alfred Mond will be raised to the peerage.

ALEXANDER CLASSEN, the eminent chemist, has just celebrated his eighty-fifth birthday. His work has dealt with analysis and electro-analysis, the degradation of cellulose to sugar and alcohol, the synthesis of organo-metallic derivatives, and other subjects.

THE ARRHENIUS MEMORIAL LECTURE of the Chemical Society will be delivered by Sir James Walker, F.R.S., in the Theatre of the Royal Institution, Albemarle Street, W.1, on Thursday, May 10. Admission by ticket only. It should be noted that the meeting is called for 5.30 p.m. and not for 8 p.m.

DR. S. GLASSTONE, lecturer in chemistry at the University College of the South West, Exeter, delivered, on Wednesday evening, the first of a series of six talks on "Chemistry in Daily Life," which he is giving weekly at the Plymouth broadcasting station and which are being transmitted simultaneously from other stations of the B.B.C.

THE LONDON COUNTY COUNCIL invites applications for two Robert Blair Fellowships in applied science and technology, each of the value of £450, tenable for one year. The fellowships are for advanced study or research, and will be tenable in the Dominions, the United States or other foreign countries. Further details will be found in our advertisement columns, p. xxiii.

AN ISSUE AT PAR was made on Wednesday of 150,000 8 per cent. participating preference shares of 10s. each and 150,000 ordinary shares of 1s. each in Solidol Chemical, Ltd., a company formed to acquire the business of the Solidol Chemical Co., Ltd., and to manufacture "Lysol" in tablet form and other preparations. The products are already on the market.

RECENT WILLS INCLUDE: Mr. George Teale Meggitt, formerly departmental manager of Morris and Griffin (Newport), Ltd. chemical manure manufacturers, £1,236 (net personalty £1,168).—Mr. Henry Charles Wrathall, chemical merchant and broker, £77,941 (net personalty £72,976).—Mr. John Henshaw, head of John Henshaw and Co., chemical manufacturers, Manchester, £12,645 (net personalty £10,638).

IT IS PROBABLE THAT the London Section of the British Industries Fair for 1931 will be housed in a building at Earl's Court. The scheme for the erection of the hall is the plan of the Underground Railway Co., which has an interest in the old Earl's Court Exhibition site, and according to proposals revealed during the week, intends to build an exhibition centre for the use of trade fairs in London which will be comparable to the famous Continental fairs.

ARTIFICIAL SILK NEWS.—The board of the Apex (British) Artificial Silk Co. state that during the four months since the meeting considerable progress has been made and technical difficulties have been overcome. Production of artificial silk on a large scale plant has been initiated.—It is announced in Londonderry that an English combine is negotiating for the purchase of the premises occupied by Watts Distillery for an artificial silk factory.

THE BRITISH CONSUL AT ANTOFAGASTA has forwarded some notes on the production of nitrate at a Chilean Oficina in which reference is made to improved and more economical methods of extracting the nitrate salts from the "caliche." These memoranda will be of interest to firms who are in a position to offer British machinery and plant suitable for any of the operations connected with the production of nitrate, and a copy can be obtained on application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. (Reference A.X. 6141.)

THE BIRMINGHAM TAME AND REA DISTRICT DRAINAGE BOARD (which has one of the largest sewage disposal works in the country), installed last year a plant for making practical use, for power purposes, of the gas which is given off by the sludge from the sewage. This plant will produce yearly half a million units of electricity. As their present power requirements are likely to increase, the Board has decided to install a new 400 horse-power engine with the necessary collectors of the sewage gas and an alternator to produce annually one million units of electricity.

A NEW METHOD of manufacturing printers' ink from sulphite lye has been worked out by an engineer named Ludvigsen in Stockholm. The new method is described as very simple and practical, and the claim is made that it will reduce the cost of production considerably. The new printers' ink has been experimentally used in a Swedish newspaper with excellent results, and a special company, the O.Y. Trema A.B., in Helsingfors, Finland, has been founded for its exploitation, which is expected to prove especially useful in countries with wood pulp industries.

Obituary

PROFESSOR G. SCHULTZ, head of the technical chemical laboratory at the Munich Technical High School, at the end of April, aged 77. Before becoming professor of chemical technology at Munich in 1896, he was a member of the research staff of the Aktiengesellschaft für Anilinfabrikation, and later manager of a works in Basle. He was the author of *Farbstofftabellen*, a colour index which has become one of the classics of dyestuff literature, and of another well-known work, *Die Chemie des Steinkohlenteers*.

References to Current Literature

British

ANALYSIS.—Tests for impurities in ether. I. Tests for peroxides. G. Middleton and F. C. Hymas. *Analyst*, April, pp. 201–209.

Determination of carvone in dill oil. J. Reilly and P. J. Drumm. *Analyst*, April, pp. 209–211.

Some experiences in the determination of very small quantities of iodides. J. T. Dunn. *Analyst*, April, pp. 211–212.

COLLOIDS.—The adsorption of hydrogen ions and its effect on the swelling and electrical charge of gelatin. B. N. Ghosh. *J. Chem. Soc.*, March, pp. 711–719.

FOOD.—Impurities in colouring matters used in food. First report of representatives appointed by the Society of Public Analysts and the Association of British Chemical Manufacturers to consider the impurities permissible in colouring matters used in foodstuffs. Arsenic. *Analyst*, April, pp. 217–218.

GENERAL.—The by-product fish industry in Canada. R. T. Elworthy. *Canadian Chem. Met.*, April, pp. 96–98. Deals, among other things, with Canadian production of fish meal and fish oil; the refining, deodorisation, and hydrogenation of fish oils; uses of fish meal, fish fertiliser, and fish oil; markets and prices, etc.

ORGANIC.—Some derivatives of benzyl-*p*-phenylenediamine. J. Reilly and J. J. Moore. *J.S.C.I.*, April 20, p. 116.

The introduction of the triphenylmethyl group into phenols. D. R. Boyd and D. V. N. Hardy. *J. Chem. Soc.*, March, pp. 630–638.

United States

ADSORPTION.—Adsorption of sulphur dioxide by titania gel. S. Klosky and A. J. Burggraff. *J. Amer. Chem. Soc.*, April, pp. 1045–1049.

ANALYSIS.—Potassium ferrocyanide as a qualitative test for zinc. G. W. Bennett and F. G. McKee. *J. Chem. Education*, April, pp. 473–475. The test is sensitive to the extent of 2½ mg. per litre. Aluminium and chromate ions do not interfere, and large and small amounts of zinc are readily detected in the presence of large amounts of chromium as chromate or dichromate.

APPARATUS.—New apparatus for boiling point determinations. W. Swietoslawski. *J. Chem. Education*, April, pp. 469–472, 475.

FACTORY CONTROL.—Factory operation of automatic electrometric *p*H control of cane juice defecation. R. T. Balch and H. S. Paine. *Ind. Eng. Chem.*, April 1, pp. 348–353. Automatic control of the liming of cane juice in the manufacture of raw sugar, operating on electro-metric principles, was tested in Porto Rico over a period of four months. The principles of the control were fully established, and the results indicate a very promising means of controlling this important process.

GENERAL.—The electron in organic chemistry. I. The electronic conception of the nature of the carbon-to-carbon bond from the standpoint of the theory of partial polarity. M. S. Kharasch and O. Reinmuth. *J. Chem. Education*, April, pp. 404–418.

Graphical methods in lacquer technology. H. E. Hofmann and E. W. Reid. *Ind. Eng. Chem.*, April 1, pp. 431–436. Several common methods of graphical representation of experimental data are discussed and their applicability to certain problems of the lacquer chemist is noted. Two typical alignment charts are given, showing methods of calculating viscosity and specific gravity of mixtures.

ORGANIC.—Organic selenium compounds. Some derivatives of aromatic seleno-ethers. D. G. Foster and S. F. Brown. *J. Amer. Chem. Soc.*, April, pp. 1182–1188.

The formation of primary amines from Grignard reagents and monochloroamine. G. H. Colman and C. R. Hauser. *J. Amer. Chem. Soc.*, April, pp. 1193–1196. Monochloroamine reacts with Grignard reagents to form primary amines and ammonia. The yields of amines are greatest with organo-magnesium chlorides, less with bromides, and least with iodides.

PLANT.—Designing equipment for chemical treatment of oil distillates. J. C. Morrell and D. J. Bergman. *Chem. Met. Eng.*, April, pp. 210–214.

WATER.—Phenol recovery plant avoids waste pollution of streams. H. E. Jones. *Chem. Met. Eng.*, April, pp. 215–218.

Water softening with barium salts. C. J. Rodman. *Chem. Met. Eng.*, April, pp. 221–223.

Chemical engineering applied in new St. Louis water plant. C. W. Cuno. *Chem. Met. Eng.*, April, pp. 230–231.

German

ADSORPTION.—Adsorption in mixtures of solvents. E. Angelescu and V. N. Comanescu. *Kolloid-Zeitschrift*, April, pp. 288–296.

Adsorption phenomena in solution. X. On the relation between adsorption and the *p*H value of solutions. S. Pewsner. *Zeitschrift physikal Chem.*, Vol. 133, Parts 1–2, pp. 122–128.

APPARATUS.—Laboratory vacuum filters. F. Boldt. *Chemische Fabrik*, March 25, pp. 227–228.

COLLOIDS.—Turbidity phenomena in gelatine. K. Mayer. *Kolloid-Zeitschrift*, April, pp. 315–319.

DYESTUFFS.—The sensitivity of dyestuffs to light. A. Steigmann. *Kolloid-Zeitschrift*, April, pp. 326–329.

Contribution to the knowledge of dyestuffs of the orcein type. F. Henrich and W. Herold. *Berichte*, April 11, pp. 767–770.

GENERAL.—The effect of salts on the solubility of water in phenol. R. Cernatescu. *Zeitschrift physikal Chem.*, Vol. 133, Parts 1–2, pp. 31–38.

INORGANIC.—The oxidation of alkali cyanides by permanganate. H. Gall and G. Lehmann. *Berichte*, April 11, pp. 670–675.

INSULIN.—The acetylation of insulin. K. Freudenberg and W. Dirscherl. *Zeitschrift physiologische Chem.*, Vol. 175, Parts 1–2, pp. 1–17.

ORGANIC.—The condensation of hydroxy-acids through the simultaneous action of several catalysts under high hydrogen pressure: α-hydroxy-*n*-butyric acid and α-hydroxy*iso*valeric acid. W. Ipatiew and G. Rasuwajew. *Berichte*, April 11, pp. 634–637.

Derivatives of phenolmonosulphochlorides. E. Gebauer-Fülnegg and A. Schlesinger. *Berichte*, April 11, pp. 781–784.

Novelties and improvements in the production of acetic acid and its derivatives. I, II, III, and IV. E. Terlinck. *Chemiker-Zeitung*, March 28, pp. 249–250; April 4, pp. 270–272; April 18, pp. 307–309; April 25, pp. 326–328. Deals with barium acetate, its properties, preparation, and application in the preparation of sodium acetate, calcium acetate, acetic acid, and acetic anhydride.

Miscellaneous

GENERAL.—Action of light on diazo-compounds. A. Seyewitz and D. Mounier. *Comptes Rendus*, April 2, pp. 953–955 (in French).

Recent advances in the chemistry and industry of fats. H. Dubovitz. *Chemische Rundschau*, February 21, pp. 25–27; March 6, pp. 33–36 (in German).

OILS.—Contribution to the study of chaulmoogra oils. Investigation of oil of Gorli. I. E. André and D. Jouatte. *Bulletin Soc. Chim. France*, March, pp. 347–360 (in French).

ORGANIC.—Contribution to the study of cholester.l. IV. The different modes of oxidation. E. Montignie. *Bulletin Soc. Chim. France*, March, pp. 360–364 (in French).

The action of organo-magnesium compounds on trisubstituted acetonitriles. Ramart-Lucas and F. Salmon-Legagneur. *Bulletin Soc. Chim. France*, March, pp. 321–329 (in French).

Contribution to the study of the preparation of phenolic ketones after the method of Hoesch. A. Korczynski and A. Nowakowski. *Bulletin Soc. Chim. France*, March, pp. 329–337 (in French).

Patent Literature

The following information is prepared frompublished Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

287,702. Iron Oxide Hydrate from Iron Metal, Process for Producing. J. Wagner, 146, Wymering Road, London, W.9. Application date, March 8, 1927.

Iron or steel scrap is placed in a tank of water containing up to 3 per cent. of sodium chloride and up to 1.5 per cent. of catalytic chlorides such as iron protochloride or manganese chloride. Other metal chlorides and also acetates and nitrates are also suitable as catalysts. The water is continuously circulated and is aerated by a current of air containing 10 per cent. of carbon dioxide. The ferric hydroxide produced is filtered off from the circulating liquor.

287,829. Nitrogen and Acetone from Vinasses and/or Molasses, Process for the Recovery of. Les Nouvelles Industries Chimiques Soc. Anon. 14, rue du Bronze, Anderlecht-Bruxelles, Belgium. Application date, June 13, 1927. Addition to 277,932.

Specification No. 277,932 describes the destructive distillation of vinasses or molasses in the presence of an excess of lime or other alkaline earth in a current of inert or reducing gases such as nitrogen, carbon dioxide, hydrogen, or methane, at a temperature below 600° C. In this invention, the mixture to be distilled contains an alkaline earth carbonate such as calcium carbonate or residues from a previous distillation or a hygroscopic substance such as sawdust.

285,923, 286,678–9, 286,680–1. Hydrocarbons or Derivatives thereof from Coal, Tars, Mineral Oils, etc. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 10, 1925.

295,923. The destructive hydrogenation of coal, tar, mineral oils, etc., is effected with the aid of catalysts containing difficultly reducible oxides, or carbonates forming difficultly reducible oxides of metals of the 3rd to the 5th group of the periodic system, *e.g.*, alumina, rare earths, difficultly reducible oxides of the 4th group, or oxides or carbonates of vanadium. Metals of the 8th group such as iron may also be present. These catalysts are not attacked by impurities contained in mineral oil, coal, tar, etc. The process is carried out at a pressure above 50 atmospheres and temperature above 450° C., and substantial amounts of low boiling hydrocarbons resembling benzene are obtained. The process is applicable to coal, lignite, peat, and their distillation products, wood tar, mineral oils, schist oils, distillation residues, resins, etc. Reference is directed in pursuance of Section 7, sub-section 4, of the Patents and Designs Acts, 1907 and 1919, to Specifications No. 257,256, 151,264, 249,501, 249,156, 247,582–3–6–7 239,556, 213,295, 198,071, 12,188/1915 and 28,460/1911.

286,678. A catalyst for the hydrogenation of coal and other carbonaceous materials consists of oxides or carbonates of lithium, magnesium, and zinc. Reference is directed in pursuance of Section 7, Sub-section 4 of the Patents and Designs Acts of 1907 and 1919 to Specifications Nos. 257,256, 254,713, 251,264, 249,156, 247,585, 239,556, 12,188/1915 and 17,272/1913.

286,679. Catalysts for the hydrogenation of coal and other carbonaceous material consist of compounds of lead, cadmium, bismuth, or tin, with or without difficultly reducible metal oxides or carbonates, *e.g.*, magnesite, lithium carbonate, zinc carbonate, uranium carbonate, manganese carbonate, vanadium carbonate. Metals of the 8th group of the periodic system may also be present. Reference is directed in pursuance of Section 7, Sub-section 4, of the Patents and Designs Acts, 1907, and 1919 to Specifications Nos. 257,256, 249,156, and 193,922.

286,680. Catalysts for the hydrogenation of coal or other carbonaceous materials consist of oxide or carbonate of uranium, with or without metals of the 8th group of the periodic system. Reference is directed in pursuance of Section 7, Sub-section 4, of the Patents and Designs Acts of 1907 and 1919 to Specifications Nos. 257,256, and 249,155–6.

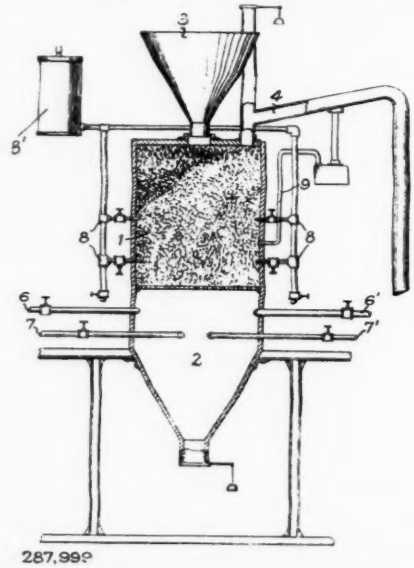
286,681. Catalysts for the hydrogenation of coal or other carbonaceous material consist of oxide or carbonate of manganese, with or without metals of the 8th group of the periodic system. Reference is directed in pursuance of Section 7, Sub-section 4, of the Patents and Design Acts of 1907 and 1919 to Specifications Nos. 257,256, 249,156–6, 247,585, and 4,573/1914.

287,967. Ketones, Manufacture of. Sir W. J. Pope, Holmesdale, Brooklands Avenue, Cambridge. Application date, December 31, 1926.

The process is for the production of phenolic derivatives of fatty aromatic ketones in which two hydrogen atoms in the aromatic nucleus are replaced by phenolic hydroxyl groups, and in which another hydrogen atom of the aromatic nucleus is replaced by an acidic radicle of the composition CO.X in which X is a univalent hydrocarbon radicle having more than one carbon atom. A mono acidic ester of hydroquinone or resorcinol is treated with a condensing agent such as magnesium, zinc, aluminium, ferric, or stannic chlorides, sulphuric acid, or phosphoric acid. This effects the isomeric change smoothly. The mono-acidic esters of hydroquinone and resorcinol can be obtained by heating hydroquinone or resorcinol with the corresponding acid anhydride or acid chloride or bromide. The ester need not be isolated, but the product may then be heated with zinc chloride or other condensing agent. Examples are given of the preparation of propionyl hydroquinone, isobutyryl resorcinol, caproyl resorcinol, lauryl resorcinol, and stearyl resorcinol. The ketones thus obtained may be subjected to reduction by zinc amalgam and dilute hydrochloric acid to obtain alkyl hydroquinones or resorcinols. Many of the products have strong bactericidal properties.

287,999. Distillation and Gasification of Solid Carbonaceous Material. A. K. Croad, London. From Zieley Processes Corporation, 7, East 42nd Street, New York. Application date, February 14, 1927.

Liquid hydrocarbons are obtained from coal and other solid fuels by distilling them and gasifying them at a relatively



287,999

high temperature in contact with sodium chloride. Coal is impregnated with sodium chloride and introduced into a combustion chamber 1 from a hopper 3. Air is introduced into the closed ash pit 2 through pipes 6, 6^1, and the temperature is maintained at about 2,500° F. Steam is passed in through pipes 7, 7^1, and hydrocarbons are formed and passed through pipe 4 to condensers. The sodium chloride acts catalytically and remains substantially unchanged, but further supplies may be introduced through pipes 8 from a container 8^1. Heavy

condensate returns to the still through pipe 9. Light hydrocarbons such as benzene, gasoline, and naphtha are obtained.

287,995. TRIARYL-METHANE DYES, MANUFACTURE OF. British Dyestuffs Corporation, Ltd., Hexagon House, Blackley, Manchester, and T. A. Simmons, Dalton Works, Huddersfield. Application date, February 5, 1927.

The process is for the manufacture of Lissamine Green V (Colour index No. 735) from 4 : 4^1-tetraethyldiamino-benzhydrol and 2 : 7-naphthalene-disulphonic acid. The hydrol is obtained in the form of its 2 : 7-naphthalene-disulphonate by adding a soluble salt of 2 : 7-naphthalene-disulphonic acid to a solution of the hydrol, and acidifying the mixture. This salt of the hydrol is soluble in concentrated sulphuric acid, and the condensation to the leuco-derivative of the dyestuff is effected by dissolving the salt in 100 per cent. sulphuric acid and heating the solution. The isolation of the hydrol or of its omega sulphonic acid are thus avoided.

288,056. RECOVERY OF REACTION PRODUCTS FROM GASES TREATED WITH ELECTRIC ARCS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, December 20, 1926. Addition to 263,859.

Mixtures containing hydrogen and methane are treated in electric arc furnaces to convert part of the methane into acetylene. One or more small outlet openings are provided, concentrically or laterally arranged near the reaction zone. The gas which passes through the outlets contains hydrogen and acetylene and practically no methane, while the remainder of the gas contains only a small proportion of acetylene. The acetylene can be removed from the first portion and pure hydrogen obtained.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—262,418 (I.G. Farbenindustrie Akt.-Ges.), relating to dyestuffs containing chromium, see Vol. XVI, p. 167 ; 263,843 (I.G. Farbenindustrie Akt.-Ges.), relating to thiomorpholines of the anthroquinone series, see Vol. XVI, p. 263 ; 265,930 (Grasselli Chemical Co.), relating to vulcanization of rubber substances, see Vol. XVI, p. 382.

International Specifications not yet Accepted

285,847. SULPHURIC ACID. Soc. Générale Metallurgique de Hoboken, Hoboken-lez-Anvers, Belgium. (Assignees of H. H. Petersen, 6, Hohenzollernstrasse, Steglitz, Berlin.) International Convention date, February 23, 1927.

Sulphuric acid of 54-63° Bé. containing nitrogen oxides is injected into the lead chambers from nozzles in the roof, walls, or below the acid in the bottom, in such amount that the acid still contains nitrous products, more so in the last chambers than in the first.

285,873. ALKYL-GUANIDINES. Schering-Kahlbaum Akt.-Ges, 170, Müllerstrasse, Berlin. International Convention date, February 24, 1927. Addition to 279,884. (See THE CHEMICAL AGE, Vol. XVIII, p. 35.)

These are obtained by treating a salt of a higher alkylamine with cyanamide or a derivative, and insufficient solvent to form a solution. Di-isoamyl-amine is thus converted into di-isoamyl-guanidine, decamethylene-diamine into diguanyl-decamethylene-diamine, and other compounds similarly.

285,877. 2-AMINO-4-NITRO-1-BENZOIC ACID. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, February 24, 1927.

2-Chlor-4-nitro-1-benzoic acid is treated with ammonia, alkylamine, arylamine, or aralkylamine in the presence of a catalyst such as finely divided copper, to produce the corresponding amino acid.

285,915. METALLIC BROMIDES. J. H. van der Meulen, 2, Paul Krugerstraat, Arnhem, Holland. International Convention date, February 25, 1927.

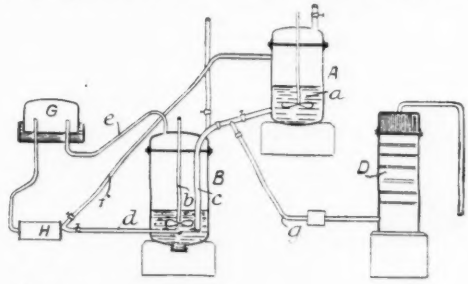
Metallic oxides, hydroxides, carbonates, or bicarbonates are treated with bromine in presence of water and reducing agents which decompose only into water and gases, or reducing agents containing the metal of which the bromide is required. Suitable reducing agents include urea, cyanamide, ammonia, ammonium carbonate, formamide, hexamethylene-tetramine, ammonium cyanide, formic or oxalic acid, calcium nitride. Examples are given.

286,201. HYDROGENATED COMPOUNDS. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, February 26, 1927.

Esters of aromatic carboxylic acids are hydrogenated in the nucleus by treating with hydrogen at 120°-150° C. and under pressure of 25-40 atmospheres in the presence of a nickel catalyst. The esters may be saponified to obtain the acids. Examples are given of the conversion of benzoic acid ethyl ester to hexahydrobenzoic acid ethyl estr, phenyl-l acetic acid ethyl ester to hexahydro-phenylacetic eacid ethy ester, and several others.

286,206. HYDROGENATING OIL AND COAL PRODUCTS. G. Hugel, 12, Rue des Jacinthes, Strasbourg, M. Paul, 2, Rue d'Auxonne, Nancy, and M. Boishel, 15, Saarstrasse, Brebach, Saare, France. International Convention date, February 28, 1927.

Distillation products of coal and petroleum are hydrogenated by hydrides of alkali or alkaline earth metals below



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300° C. and 100 kilos pressure. Contact poisons such as nitrogen, sulphur, arsenic, and oxygen compounds, do not affect the process. Sodium is treated in an autoclave A, with hydrogen admitted under pressure through a pipe *f*, after compression by a pump H. The sodium hydride produced is stabilised by impregnating with tetralin or other hydrocarbons or amides such as sodium amide. The hydride and substance to be treated pass through pipe C to autoclave B, and hydrogen is admitted at *d*. The product is drawn off by pipes *c*, *g*, to a still D, from which fractions ranging from benzene to heavy oils are obtained.

286,212. BASE EXCHANGING SUBSTANCES. Selden Co., 339, 2nd Avenue, Pittsburg, U.S.A. (Assignees of A. V. Jaeger, 9, Grandview Avenue, Crafton, Pa., U.S.A.) International Convention date, February 28, 1927.

Non-siliceous base exchange substances are formed by reacting a metallate containing an anion capable of forming the acidic part of the nucleus of the base exchange body with a metal salt containing a metal, which is amphoteric in at least one stage of oxidation, to give a product which is alkaline to litmus, and neutral or alkaline to phenol-phthalein. Metallates used include those of aluminium, chromium, zinc, tin, lead, etc., and metal salts used include soluble neutral or acid salts of copper, silver, bismuth, gold, zinc, aluminium, tin, lead, etc. A large number of examples are given of the production of substances which can be used for the catalytic oxidation of toluol to benzaldehyde, as catalysts in the contact sulphuric acid process, for the oxidation of naphthalene and anthracene, the reduction of nitrobenzol, the dehydrogenation of cyclohexanol, the conversion of borneol into camphor, or as a chlorine carrier. Other products can be used for hydrogenation purposes in the production of alcohols, for hardening fats, for reducing ketones, phenols, aldehydes, etc., and for softening water. Catalysts for ammonia synthesis and a large number of other reactions are also obtained.

286,226-7. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, February 28, 1927.

286,226. Disazo dyes are obtained by coupling a sulphonic acid of tetrazotized 4:4^1-diamino-diphenylurea or a derivative with a sulphonic acid of an acetoacetic arylide and sulphonating the product, or by treating a sulphonic acid of a *p*-amino-sulphophenyl-azo-acetoacetic arylide with phosgene. Examples are given of the coupling of tetrazotized 4:4^1-diamino-diphenylurea-3:3^1-disulphonic acid with acetoacetic-*o*-anisidide sulphonic acid ; the sulphonation of the monoazo dyestuffs

4-nitraniline-2-sulphonic acid→acetoacetic *o*-chloranilide, reduction of the nitro group and treatment of the product with phosgene; the reduction of the nitro group of the monoazo dyestuff 5-nitro-2-anisidine-4-sulphonic acid→(alkaline) acetoacetic *o*-anisidide sulphonic acid, and treatment of the product with phosgene. The products give fast yellow shades on cotton, viscose silk, or cuprammonia silk.

286,227. An aminoazo dyestuff derived from an arylene diamine carboxylic acid is diazotized and coupled with a component to obtain a disazo dye, and a diaminoazo dyestuff similarly derived is tetrazotized and coupled with a component to obtain a trisazo dye. In an example, the nitro group of the monoazo dyestuff 5-nitro-2-aminobenzoic acid→(alkaline) 2-amino-8-naphthol-6-sulphonic acid is reduced and the product tetrazotized and coupled with *m*-phenylenediamine, to obtain a trisazo dyestuff giving greenish-black dyeings on cotton which may be increased in fastness by after treatment with copper salts. Other examples are given.

LATEST NOTIFICATIONS.

289,037. Manufacture of derivatives of 2-oxynaphthalene-3-carboxylic acid amide. I. G. Farbenindustrie Akt.-Ges. April 22, 1927.

289,022. Preservation of latex. I. G. Farbenindustrie Akt.-Ges. April 20, 1927.

289,063. Manufacture of shaped masses from cellulose derivatives of higher fatty acids. I. G. Farbenindustrie Akt.-Ges. April 22, 1927.

289,092. Manufacture of dyestuffs of the diaminotriphenylmethane series. I. G. Farbenindustrie Akt.-Ges. April 23, 1927.

289,093. Construction of kinematograph camera. I. G. Farbenindustrie Akt.-Ges. April 22, 1927.

289,094. Manufacture of new dyestuffs. Soc. of Chemical Industry in Basle. April 23, 1927.

289,097. Manufacture of 1-amino-anthraquinone-2-sulphonic acid. I. G. Farbenindustrie Akt.-Ges. April 23, 1927.

Specifications Accepted with Date of Application

261,393. Hydrocarbons of the benzene series, Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. November 12, 1925.

264,503. Alkyl pyrazolones, Manufacture and production of I. G. Farbenindustrie Akt.-Ges. January 13, 1926.

265,986. Acid dyestuffs of the phenonaphthosafranine series, Manufacture of. J. R. Geigy. February 13, 1926.

271,521. Electrolytically recovering pure tin from impure stanniferous materials. Berzelius Metallhütten Ges. May 21, 1926.

271,837. Readily soluble organic salts of c-j- dialkyl and arylalkyl barbituric acids, Manufacture of. Etablissements Poulenc Frères. May 25, 1926.

273,248. Steel, Manufacture of. Kabushiki Kaisha Nihon Seikosho. June 22, 1926.

275,585. Synthetic liquid fuels, Process for the manufacture of. Soc. Internationale des Procédés Prudhomme-Houdry. August 3, 1926.

276,317. Steel alloys. F. Krupp Akt.-Ges. August 23, 1926.

277,372. 1-methyl-2:5:6-trichloro-3-aminobenzene-4-sulphonic acid. I. G. Farbenindustrie Akt.-Ges. September 11, 1926.

278,341. Motor fuels, Manufacture and production of. I. G. Farbenindustrie Akt.-Ges. November 5, 1925. Addition to 259,944.

278,729. 1-amino 2:4-dimethylbenzene, Manufacture of chlorine substitution products of. I. G. Farbenindustrie Akt.-Ges. October 6, 1926.

279,134. Dinitrohalogen aryls, Manufacture of. I. G. Farbenindustrie Akt.-Ges. October 18, 1926.

279,436. Intermediate product for making dyestuffs. I. G. Farbenindustrie Akt.-Ges. October 23, 1926.

282,409. Acid wool dyestuffs, Manufacture of. I. G. Farbenindustrie Akt.-Ges. December 14, 1926.

288,662. Hydrogen or gas mixtures containing hydrogen from hydrocarbons, Manufacture and production of. J. Y. Johnson. (*I. G. Farbenindustrie Akt.-Ges.*) November 15, 1926.

288,665. Halogen-substituted tertiary aromatic amines, Process for the manufacture of. K. Carpmael and K. S. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*). December 10, 1926.

288,666. Vat dyestuffs and intermediate products. K. Carpmael and K. S. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) December 10, 1926.

288,673. Dyes and dyeing. J. E. G. Harris, B. Wylam, J. Thomas, and Scottish Dyes, Ltd. December 31, 1926.

288,699. Soda ash, Recovery of. J. Holmes, H. A. Kingcome, and J. L. Jardine. January 11, 1927.

288,707. Unsaturated hydrocarbons of the acetylene series, Process of producing addition products of. Verein für Chemische Industrie Akt.-Ges., and H. Walter. January 11, 1927.

288,775. Continuous evaporation, distillation, or separation of difficultly distillable liquids. J. Y. Johnson. (*I. G. Farbenindustrie Akt.-Ges.*) February 17, 1927.

288,788. Azo dyestuffs. K. Carpmael and K. S. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) March 2, 1927.

288,861. Ferrous alloys. B. D. Saklatwalla. June 30, 1927.

288,884. 1-amino-2:4-dichloro-anthraquinone and the intermediate products thereof, Process of manufacture of. I. Gubelmann, H. J. Weiland, and O. Stallmann. August 15, 1927.

288,927. Nitro-2:3-dichloro-1:4-naphthoquinone, Manufacture of. O. Y. Imray. (*I. G. Farbenindustrie Akt.-Ges.*) November 22, 1927.

288,939. Antimonial lead alloys, Purification of. H. Wade. (*United States Smelting, Refining and Mining Co.*) December 21, 1927. Addition to 236,782.

288,957. Bromo derivatives of 1:1¹-dinaphthyl 8-8¹-dicarboxylic acid, Manufacture of. K. Carpmael and K. S. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) December 10, 1926.

Applications for Patents

Adams, R. Process of making 1-methyl-2, 4 di-halogen anthraquinone from 2, 4-di-halogen toluenes, etc. 12,366. April 27.

Carpmael, A. and I. G. Farbenindustrie Akt.-Ges. Manufacture of derivatives of glycols. 12,162. April 25.

Du Pont de Nemours and Co., E. I. and Marks, E. C. R. Production of alcohol and glycerine. 12,387. April 27.

Du Pont de Nemours and Co., E. I. Production of glycerine. 12,388. April 27.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of artificial rubber. 12,231. April 26.

I.G. Farbenindustrie Akt.-Ges. Manufacture of vat dyestuffs. 12,232. April 26.

I.G. Farbenindustrie Akt.-Ges. Desulphurisation of gases. 12,233. April 26.

I.G. Farbenindustrie Akt.-Ges. Conversion of hydrocarbons. 12,234. April 26.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of valuable low-boiling, etc. hydrocarbons. 12,376. April 27.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of fertilisers. 12,377. April 27.

I.G. Farbenindustrie Akt.-Ges. and Mond, A. L. Production of printing-surfaces. 12,431. April 27.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of alkali nitrate. 12,513. April 28.

I.G. Farbenindustrie Akt.-Ges. Manufacture of dyestuffs. 11,885. April 23. (Germany, April 23, 1927.)

I.G. Farbenindustrie Akt.-Ges. Kinematograph camera. 11,886. April 23. (Germany, April 22, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of 1-amino-anthraquinone-2-sulphonic acid. 11,906. April 23. (Germany, April 23, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture, etc. of condensation products of urea and formaldehyde. 12,013. April 24. (November 6, 1926.)

I.G. Farbenindustrie Akt.-Ges. Process for producing photoprints, etc. 12,118. April 25. (Germany, April 25, 1927.)

I.G. Farbenindustrie Akt.-Ges. Treating nitrocelluloses. 12,119. April 25. (Germany, April 25, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of condensation products of urea. 12,375. April 27. (August 27, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of crotyl bromide. 12,395. April 27. (Germany, April 30, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of anthraquinone dyestuffs. 12,396. April 27. (Germany, May 2, 1927.)

I.G. Farbenindustrie Akt.-Ges. Partitions for use in fusion electrolysis of chlorides. 12,432. April 27. (Germany, December 23, 1927.)

Jones, J. I. M. and Standfast Dyers and Printers, Ltd. Dyeing and printing. 12,266. April 26.

Morgan, G. T. Separation of constituents of low temperature tar. 12,482. April 28.

Newport Co. Bromination products of 4, 4¹-dimethyl-6, 6¹-dichloro-thio-indigo. 11,896. April 23. (United States, June 25, 1927.)

Pollopas, Ltd. and Spencer, G. Dyeing. 11,957. April 24.

Silver Springs Bleaching and Dyeing Co., Ltd. Delustring cellulose acetate silk, etc. 11,986. April 24.

Silver Springs Bleaching and Dyeing Co., Ltd. Delustring cellulose-acetate silk. 12,463. April 28.

Soc. of Chemical Industry in Basle. Manufacture of dyestuffs. 11,887. April 23. (Switzerland, April 23, 1927.)

Verein für Chemische und Metallurgische Produktion. Manufacture of fluorine compounds. 12,008. April 24. (Czecho-Slovakia, April 25, 1927.)

Verein für Chemische und Metallurgische Produktion. Manufacture of sulphuric anhydride, etc. 12,380. April 27. (Germany, May 5, 1927.)

West, E., West's Gas Improvement Co., Ltd. and Wild, W. Distillation of coal, etc. 12,531. April 28

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 6d. to 1s. 11d. per gall.; pyridinised industrial, 1s. 8d. to 2s. 1d. per gall.; mineralised, 2s. 7d. to 2s. 11d. per gall.; 64 O.P., 1d. extra in all cases.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6¼d. to 6¾d. per lb. Crude 60's, 2s. 3d. to 2s. 4d. per gall. prompt.

ACID CRESYLIC 99/100.—2s. 8d. to 3s. per gall. 97/99.—2s. 7d. to 2s. 8d. per gall. Pale, 95%, 2s. 5d. to 2s. 6d. per gall. Dark, 95%, 2s. 2d. to 2s. 3d.

ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7¾d. to 8d. per gall.

BENZOLE.—Prices at works; Crude, 10½d. to 11d. per gall.; Standard Motor, 1s. 4½d. to 1s. 5d. per gall.; 90%, 1s. 5½d. to 1s. 6d per gall.; Pure, 1s. 9d. to 1s. 10d. per gall.

TOLUOLE.—90%, 1s. 4d. to 1s. 11d. per gall. Firm. Pure, 1s. 6d. to 2s. 1d. per gall.

XYLOL.—1s. 3d. to 1s. 10d. per gall. Pure, 2s. 4d. per gall.

CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall.; middle oil, 7⅞d. to 8⅛d. per gall. Heavy, 8½d. to 8⅝d. per gall. Standard specification, 7¾d. to 7½d. ex works. Salty, 7½d. per gall.

NAPHTHA.—Crude, 7½d. to 7¾d. per gall. Solvent 90/160, 10d. to 10½d. per gall. Solvent 95/160, 10½d. to 1s. 7d. per gall. Solvent 90/190, 9½d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed, £8 per ton. Hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £13 to £14 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.

PITCH.—Medium soft, 62s. 6d. to 67s. 6d. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 5s. to 6s. per gall. 90/180, 3s. to 4s. 6d. per gall. Heavy, 2s. 6d. to 3s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 8½d. per lb.

ACID GAMMA.—4s. 6d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—8d. per lb. naked at works.

ANILINE SALTS.—8d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5½d. per lb.

m-CRESOL 98/100%.—2s. 3d. to 2s. 6d. per lb.

p-CRESOL 32/34° C.—2s. per lb.

DICHLORANILINE.—2s. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—8d. per lb.

p-TOLUIDINE.—2s. 1½d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.

N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.

CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity. drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPHONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 7d. per lb.

ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. to 1s. 6d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 11½d. to 2s. per lb. Less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P. PULV.—1s. 2½d. to 1s. 3½d. per lb. Technical.—10½d. to 11½d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 4½d. per lb., less 5%.
ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.
AMIDOL.—7s. 6d. to 9s. per lb., d/d.
AMIDOPYRIN.—8s. to 8s. 3d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity. 18s. per lb. ex Gum.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.
ATROPINE SULPHATE.—9s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—11s. 4d. to 11s. 7d. per lb.
BISMUTH CITRATE.—10s. 4d. to 10s. 7d. per lb.
BISMUTH SALICYLATE.—10s. 7d. to 10s. 10d. per lb.
BISMUTH SUBNITRATE.—9s. 7d. to 9s. 10d. per lb.
BISMUTH NITRATE.—6s. 7d. to 6s. 10d. per lb.
BISMUTH OXIDE.—14s. 7d. to 14s. 10d. per lb.
BISMUTH SUBCHLORIDE.—14s. 4d. to 14s. 7d. per lb.
BISMUTH SUBGALLATE.—8s. 7d. to 8s. 10d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 1½d. per lb.; 12 W. Qts. 1s. 0½d. per lb.; 36 W. Qts., 1s. per lb.
BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Ammonium, 2s. 1d. to 2s. 3d. per lb.; potassium, 1s. 9¾d. to 1s. 11¾d. per lb.; sodium, 2s. to 2s. 2d. per lb.; granulated ½d. per lb. less; all spot. Large quantities at lower rates.
CALCIUM LACTATE.—1s. 2d. to 1s. 3½d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—11½d. to 1s. 0½d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—4s. 9d. to 5s. per lb.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.
HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28 lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE.—B.P., 2s. 5d. to 2s. 8d. per lb. Green, 2s. 8d. to 3s. 1d. per lb.; U.S.P., 2s. 6d. to 2s. 9d. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
IRON QUININE CITRATE.—B.P., 8¾d. to 9¼d. per oz.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 17s. per lb. net for January delivery; Synthetic, 9s. to 10s. per lb.; Synthetic detached crystals, 9s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.
MERCURIALS B.P.—Up to 1 cwt lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10s. to 5s. 11d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 5d. to 1s. 9d. per lb.
METHYL SULPHONAL.—9s. to 9s. 3d. per lb.
METOL.—9s. to 11s. 6d. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 1d. to 1s. 4d. per lb.
PHENACETIN.—2s. 6d. to 2s. 9d. per lb.
PHENAZONE.—4s. to 4s. 3d. per lb.
PHENOLPHTHALEIN.—6s to 6s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—102s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P.C., 2s. 5d. to 2s. 6d. per lb.; U.S.P., 2s. 3d. to 2s. 6d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.
RESORCIN.—2s. 10d. to 3s. per lb., spot.
SACCHARIN.—55s. per lb.; in quantity lower.
SALOL.—2s. 4d. per lb.
SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.
SODIUM CITRATE, B.P.C., 1911.—2s. to 2s. 3d. per lb., B.P.C., 1923—2s. 5d. to 2s. 6d. per lb. U.S.P., 2s. 3d. to 2s. 6d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 6½d. to 1s. 9d. per lb. Crystal, 1s. 7½d. to 1s. 10d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—6s. 9d. to 7s. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.
THYMOL.—Puriss., 9s. 6d. to 9s. 9d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—10s. per lb.
AMYL ACETATE.—2s. 6d. per lb.
AMYL BUTYRATE.—4s. 9d. per lb.
AMYL SALICYLATE.—2s. 9d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 3d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.
COUMARIN.—9s. 9d. per lb.
CITRONELLOL.—13s. 6d. per lb.
CITRAL.—8s. 3d. per lb.
ETHYL CINNAMATE.—6s. per lb.
ETHYL PHTHALATE.—2s. 6d. per lb.
EUGENOL.—8s. 3d. per lb.
GERANIOL (PALMAROSA).—20s. per lb.
GERANIOL.—6s. to 10s. per lb.
HELIOTROPINE.—4s. 9d. per lb.
ISO EUGENOL.—13s. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb
LINALYL ACETATE.—Ex Shui Oil. 14s. 6d. per lb. Ex Bois de Rose, 18s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—7s. per lb.
NEROLIN.—3s. 6d. per lb.
PHENYL ETHYL ACETATE.—11s. per lb.
PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.
RHODINOL.—35s. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 6d. per lb.
VANILLIN.—16s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb.
ANISE OIL.—2s. 9d. per lb.
BERGAMOT OIL.—26s. per lb.
BOURBON GERANIUM OIL.—16s. per lb.
CAMPHOR OIL.—9d. per lb.
CANANGA OIL, JAVA.—12s. 9d. per lb.
CINNAMON OIL LEAF.—6s. 9d. per oz.
CASSIA OIL, 80/85%.—8s. per lb.
CITRONELLA OIL.—Java, 1s. 10d. per lb., c.i.f. U.K. port. Ceylon, pure, 1s. 9d. per lb.
CLOVE OIL.—5s. 6d. per lb.
EUCALYPTUS OIL, AUSTRALIAN.—2s. 1d. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 16s. per lb.
LEMON OIL.—10s. 6d. per lb.
LEMONGRASS OIL.—4s. 3d. per lb.
ORANGE OIL, SWEET.—16s. per lb.
OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 62s. 6d. per oz.
PALMA ROSA OIL.—12s. 6d. per lb.
PEPPERMINT OIL.—Wayne County, 15s. 9d. per lb.; Japanese, 7s. 3d. per lb.
PETITGRAIN.—7s. 3d. per lb. Sandalwood, Mysore, 26s. 6d. per lb., 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, May 3, 1928.

THE chemical trade continues to be satisfactory and prices generally show an upward tendency. Export demand is also improving and forward business is more in evidence.

General Chemicals

ACETONE continues firm at £65 to £67 per ton.

ACETIC is steady at £37 to £38 per ton for 80% grades with good demand.

ACID FORMIC.—Improved demand. Price quoted at £47 for 85%.

ACID LACTIC is unchanged at the price of £43 per ton for best pale quality. Demand is improving.

ACID OXALIC continues firm at £31 to £32 per ton, with a good uptake.

ACID TARTARIC is in strong demand and price continues firm at 1s. 4½d. to 1s. 5d. per lb.

AMMONIUM CHLORIDE.—Unchanged.

ALUMINA SULPHATE has further advanced and the quotation is now £6 5s. to £6 7s. 6d. per ton for 17/18%.

ARSENIC is still quiet and market nominally unchanged.

BARIUM CHLORIDE is unchanged at £8 to £8 5s. per ton, but the material tends to move upwards.

COPPER SULPHATE.—A brisk demand has been experienced and business is being transacted at the parity of £25 per ton.

CREAM OF TARTAR is firm and the price unchanged at £104 per ton for 99/100% less 2½%.

FORMALDEHYDE continues steady at £39 per ton for 40% in casks, with an improving demand.

LEAD ACETATE continues very firm at £41 to £42 per ton for white, and £1 per ton less for brown. The demand has improved.

LEAD NITRATE.—A firm demand is reported at from £37 to £39 per ton, according to quantity and position.

LIME ACETATE.—Scarce, but market nominally unchanged.

METHYL ACETONE.—Remains in short supply, and price tends upwards at £56 to £58 per ton for 45%.

POTASSIUM CARBONATE AND CAUSTIC.—Unchanged.

POTASSIUM CHLORATE.—Fair business is reported at from 3d. to 3¼d. per lb.

POTASSIUM PERMANGANATE continues firm and prices unchanged at 5¼d. per lb. for B.P., commercial quality being quoted at ¼d. less.

POTASSIUM PRUSSIATE has been in better demand at £59 to £63 per ton.

SODIUM ACETATE is firm and in short supply at £21 10s. to £22 per ton.

SODIUM BICHROMATE.—Unchanged at British makers' figures.

SODIUM CHLORATE.—Demand active, prices unchanged at £28 to £30 per ton.

SODIUM HYPOSULPHATE.—Unchanged.

SODIUM NITRITE.—Very firm at £20 to £21 per ton, with a higher tendency.

SODIUM PHOSPHATE.—A brisk demand has been experienced here and the market is quoted at about £13 per ton.

SODIUM PRUSSIATE.—This market has advanced slightly. Good demand at 4¾d. to 5¼d. per lb., according to quantity and delivery.

SODIUM SULPHIDE.—Unchanged.

TARTAR EMETIC continues in brisk demand at 11½d. to 11¾d. per lb.

ZINC SULPHATE has also been active and the price is still held at from £11 to £12 per ton, according to quantity.

Coal Tar Products

In view of the duty imposed on petrol by the Budget, the following prices for benzol, solvent naphtha and heavy naphtha cannot be taken as definite, as the market has not yet become stabilised. The following prices, however, have been quoted during the past week :—

MOTOR BENZOL.—1s. 4½d. to 1s. 5½d. per gallon, on rails.

SOLVENT NAPHTHA.—11d. to 1s. per gallon, on rails, at works.

HEAVY NAPHTHA.—11d. to 1s. per gallon, on rails, at works.

CREOSOTE OIL is unchanged from last week, the price remaining at about 7d. per gallon, on rails, in the North, and 7¼d. per gallon in London.

CRESYLIC ACID is unchanged, the 98/100% quality being quoted at 2s. 6d. per gallon, at works, naked, and the dark quality 95/97% at 1s. 11d. per gallon.

NAPHTHALENES are unchanged, the 74/76 quality being quoted at £8 10s. per ton, and the 76/78 quality at £7 10s. to £8 per ton.

Latest Oil Prices

LONDON, May 2.—LINSEED OIL quiet and 2s. 6d. per ton lower. Spot, ex mill, £31 10s.; May, £30 10s.; June, £30 12s. 6d.; May-August, £30 15s.; September-December, £31 15s. RAPE OIL steady. Crude, extracted, £41 10s.; technical refined, £43 10s., naked, ex wharf. COTTON OIL quiet. Egyptian crude, £35; refined, common edible, £40; deodorised, £42 per ton, naked. TURPENTINE steady, unchanged. American, spot, 41s. 3d.; June, 41s. 9d.; July-December, 42s. 6d. per cwt., paid and sellers.

HULL, May 2.—LINSEED OIL.—Spot, £29 17s. 6d.; May, £30 2s. 6d.; May-August, £30 7s. 6d.; September-December, £31 7s. 6d. per ton, naked. COTTON OIL.—Bombay crude, £32; Egyptian crude (new), £33 15s.; edible refined, £37 10s.; technical, £36; deodorised, £39 10s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £38 per ton, naked. GROUNDNUT OIL.—Crushed/extracted, £39; deodorised, £43 per ton. SOYA OIL.—Extracted and crushed, £33; deodorised, £36 10s. per ton. RAPE OIL.—Crude/extracted, £40 10s.; refined, £42 10s. per ton. TURPENTINE.—Spot, 43s. 9d. COD OIL.—Spot, 30s. 3d. per cwt., barrels, net cash terms, ex mill. CASTOR OIL unaltered.

Nitrogen Products

Export.—During the last week the sulphate of ammonia market has been unchanged. As the consumption of sulphate of ammonia on the continent continues to be satisfactory it is not expected that the price will recede until June or July.

Home.—Merchants are still sending large orders although the volume appears less than a month ago. It is anticipated that the present price of £10 13s. per ton, delivered to farmer's station, in 6-ton lots, will remain in force until the end of June.

Nitrate of Soda.—Since the big drop reported last week, there has been little change in the nitrate position. The price remains at £10–£10 5s. per ton, f.o.r. chief ports in the United Kingdom. Though some holders of stock are getting a little nervous it is not anticipated that large quantites will remain unsold when the season ends.

South Wales By-Products

SOUTH WALES by-product activities during the past week were featured chiefly by a strengthening of solvent and heavy naphthas, in anticipation of increased business owing to the petrol tax. Most other products are featureless, but pitch has eased off and there is very little business, on the basis of 60s. to 65s. per ton. Crude tar continues on easy lines round about 50s. per ton f.o.r., while refined tars have a steady but moderate call with prices unchanged. Patent fuel and coke exports have improved slightly. Patent fuel for export from Cardiff continues to sell at from 21s. to 22s. 6d. per ton, while Swansea prices remain at 20s. 3d. to 20s. 9d. per ton, ex-ship. Coke, best foundry, sells at from 32s. 6d. to 37s. per ton, and other sorts from 25s. to 32s. 6d. per ton. Oil imports during the last four weeks again showed an increase, the total imports over the period being 23,215,415 gallons—an increase of 109,875 gallons over the figures for the previous four weeks.

Calcium Cyanamide 19 per Cent. N

CONSIDERABLE interest continues to be shown in this fertiliser. Inquiries at the present time are mainly in connection with the use of cyanamide for application to root crops. The farmers' price for May delivery, for 4-ton lots, remains unchanged at £9 per ton, carriage paid to any railway station in Great Britain.

A SPECIAL VOLUME of the *Zeitschrift fur anorganische und allgemeine Chemie* has been dedicated to Professor Richard Lorenz, director of the Physico-Chemical Institute of the University of Frankfurt (joint editor with Professor Tammann), in celebration of his sixty-fifth birthday.

THE PRODUCTION OF RADIUM in Belgium in 1927 (from ores from the Haut-Katanga, in the Belgian Congo), amounted to 20 g., as in the previous year. The quantity of radium disposed of annually in the world varies from 25 to 30 g. In addition to the Belgian factory, two French factories are producing radium. The plants in Bohemia and the United States have ceased to operate.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, May 2, 1928.

DURING the past week business in the heavy chemical market has been rather more active with a fair proportion of actual business placed in relation to inquiry. There are no changes in prices to record.

Industrial Chemicals

ACETONE, B.G.S.—£64 to £67 per ton, ex store, according to quantity.

ACID ACETIC.—98/100%, glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton. Powdered, £32 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Still in good demand and unchanged at 6¾d. per lb., delivered.

ACID CITRIC, B.P.—Quoted 1s. 11¾d. per lb., less 5% ex store, spot delivery. Rather cheaper to come forward.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC.—80° quality, £24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the Continent at 3½d. per lb., ex wharf. Spot material quoted 3¾d. per lb., ex store. In better demand.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality; £5 15s. per ton for 168° quality. Dearsenicated quality, 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Nominally 1s. 4d. per lb., less 5%, ex wharf, but demand not so great and some spot parcels could probably be obtained for less.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Quoted £5 10s. per ton, c.i.f. U.K. ports, prompt shipment. Spot material available at about £5 15s. per ton, ex store.

ALUM LUMP POTASH.—Spot material available at about £9 per ton, ex store. Crystal meal quoted £8 10s. per ton, ex store. Lump quality on offer from the Continent at £8 5s. per ton, c.i.f. U.K. ports.

AMMONIA, ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton. Powdered £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £21 to £22 per ton, ex station. Continental about £19 per ton, c.i.f. U.K. ports. Fine white crystals of continental manufacture quoted £16 15s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Quoted £19 7s. 6d. per ton, ex wharf, prompt despatch from mines. Spot material available at £20 5s. per ton, ex store.

BARIUM CARBONATE, 98/100%.—English material on offer at £7 5s. per ton, ex store. Continental quoted £7 per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £6 17s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers' contract price to consumers, £6 12s. 6d. per ton, delivered, minimum 4-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price, £4 5s. to £4 15s. per ton, according to quantity and point of delivery. Continental material on offer at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b., U.K. ports for export.

COPPER SULPHATE.—Continental price unchanged at about £25 per ton, c.i.f. U.K. ports. Some British material available at about £25 per ton, ex store.

FORMALDEHYDE, 40%.—Offered at £35 10s. per ton, c.i.f. U.K. ports. Spot material quoted £39 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material on offer at £31 per ton, ex store.

LEAD, WHITE.—Quoted £31 10s. per ton, ex store.

LEAD, ACETATE.—White crystals quoted £39 15s. per ton, c.i.f. U.K. ports. Brown, £38 10s. per ton. c.i.f. U.K. ports. Spot material on offer at £42 15s. per ton, ex store, spot delivery.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

METHYLATED SPIRIT.—Industrial quality, 64° O.P. quoted 1s. 7d. per gallon, less 2%, delivered.

POTASSIUM BICHROMATE.—4¼d. per lb., delivered, minimum 4-ton lots. Under 4-ton lots, ⅛d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 10s. per ton, ex wharf, prompt shipment from the Continent. Spot material available at £26 10s. per ton, ex store.

POTASSIUM CHLORATE, 99/100%.—Now on offer at £23 15s. per ton, c.i.f. U.K. ports. Crystals, 30s. per ton extra. B.P. quality, crystals or powder, quoted £32 per ton, c.i.f. U.K. ports.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Unchanged at about 6½d. per lb., ex store, spot delivery. Offered from the Continent at 6⅜d. per lb.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton; 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots, carriage paid on contract. Spot material, 10s. per ton extra.

SODIUM ACETATE.—In good demand and spot material scarce. Now quoted £21 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton, less.

SODIUM BICHROMATE.—Quoted 3d. per lb., delivered buyers' works, minimum 4-ton lots. Under 4 and over 2-ton lots, 3 1/16 per lb. Under 2-ton lots, 3¼d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, 27s. 6d. per ton extra. Light soda ash, £7 3s. 9d. per ton, ex quay, minimum 4-ton lots, with various reduction for contracts.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRATE.—Quoted £11 per ton, ex store.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—In moderate demand and price unchanged at 4¼d. per lb., ex store. Offered for prompt shipment from the Continent at 4¼d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works, for unground quality; 52s. 6d. per ton delivered. Ground quality, 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices now as follows: solid, 60 62 %, £9 per ton; broken, 60 62%, £10 per ton; crystals, 30 32%, £9 2s. 6d. per ton, delivered buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material, 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; floristella, £9 10s. per ton; ground American, £9 5s. per ton, ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid, on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered, 20s. per ton extra.

ZINC SULPHATE.—Quoted £11 per ton, ex wharf, prompt shipment from the Continent.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Exemption from Tax on Motor Benzole

IN a statement replying to criticisms made in connection with the exemption of British-produced motor benzole from taxation under the Budget proposal, the National Benzole Co., Ltd., points out that though unable to increase production through trade depression in the coal, iron, and steel trades the benzole producers have had to reduce prices to compete with the cuts in petrol prices. The sale and distribution of motor benzole has, in consequence, been at a figure much below an economic level and this burden has been borne indirectly by the coal, iron, and steel industries. The oil companies state that consequent on the announcement by the Chancellor of the Exchequer that the tax of 4d. per gallon on kerosene is withdrawn, they have reduced their wholesale prices of kerosene by 4d. per gallon. While they do not control the retail price of kerosene, they are making arrangements to refund to the wholesale buyers the 4d. per gallon tax included in wholesale kerosene prices since the introduction of the tax.

Manchester Chemical Market

(From Our Own Correspondent)

Manchester, May 3, 1928.

Steadiness in the case of the majority of products and in several instances a tendency towards greater firmness are features of the Manchester chemical market this week. A moderate volume of business is being placed by home consumers of heavy chemicals for prompt or early delivery, and although, generally speaking, there is not a great deal of forward buying going on just now, delivery specifications against existing contracts are reported to be coming to hand in satisfactory volume.

Heavy Chemicals

The demand for bichromate of soda has been on fairly steady lines and at up to 3½d. per lb. values are steady. Chlorate of soda seems to be rather stronger than of late and from 2⅞d. to 3d. per lb. is about the range of prices to-day, a moderate amount of business being put through. A fair volume of enquiry has been reported in the case of prussiate of soda, offers of which are firmer at 4½d. to 5d. per lb. Hyposulphite of soda is not attracting a great deal of buying interest just now but quotations for this material keep steady, photographic crystals being offered at £16 10s. per ton and commercial quality at from £9 5s. to £9 10s. In sulphide of sodium, also, only a quiet business is passing at the moment; prices, however, are about maintained at up to £10 per ton for the 60-65 per cent. concentrated solid and round £8 for the commercial. A steady trade is being put through in bleaching powder, offers of which are well held on a contract basis of £7 per ton. Offers of nitrite of soda for early delivery are not too plentiful and higher prices are now being asked for this material, quotations during the past week ranging from £19 5s. to £19 10s. per ton. Phosphate of soda keeps fairly steady in the neighbourhood of £12 10s. per ton, although buying interest in this is not particularly active. Caustic soda is selling in fairly steady quantities and prices are firm at from £13 7s. 6d. to £15 7s. 6d. per ton, according to quality. Both alkali and bicarbonate of soda are steady and in fair demand, with prices for contract parcels at £6 2s. 6d. and £10 10s. per ton, respectively. A moderate enquiry is about for saltcake, offers of which are at £2 12s. 6d. to £2 15s. per ton.

Rather higher prices are being quoted for permanganate of potash, B.P. quality selling this week at about 5½d. per lb. and commercial material at 4⅞d. Caustic potash is selling in fairly satisfactory quantities and values are firm at £33 5s. per ton for prompt delivery of one to five-ton lots. With regard to carbonate of potash this is in quietly steady demand, with current offers at from £25 5s. to £25 10s. per ton. Bichromate of potash is well held at about 4½d. per lb. and a moderate trade in this material is being put through. Much the same remark applies to chlorate, with prices ranging from 2⅞d. to 3d. per lb. There is a fair enquiry about for yellow prussiate of potash and offers are firmer at 6¾d. to 7d. per lb.

Sales of arsenic are on quietly steady lines and quotations show little change on the week at round £17 5s. per ton, at the mines, for white powdered, Cornish makes. Sulphate of copper is fully maintained at up to £27 per ton, f.o.b., interest in this material on export account being maintained. Acetate of lime is held at the recently reduced levels of £9 10s. per ton for brown and £15 15s. for grey, a quiet trade being reported. Acetate of lead is in moderate request, with brown on offer at round £39 per ton and white at £40. Quotations for nitrate of lead are still in the neighbourhood of £37 per ton.

Acids and Tar Products

Oxalic acid is steady at about 3⅞d. per lb. and meets with a fair amount of enquiry. Acetic acid is in quietly steady demand and there has been little change in values, glacial being quoted at £66 and 80 per cent. commercial at from £37 to £37 10s. per ton. Citric acid keeps fairly steady at about 1s. 11½d. per lb. but there is no great weight of business being placed. Current offers of tartaric acid are at round 1s. 4½d. per lb.

A quiet trade is passing in creosote oil and quotations for this are at 7¼d. per gallon. Carbolic acid crystals are in moderate request and prices are steady at up to 6½d. per lb., with crude scarce and firm at about 2s. 5½d. per gallon.

K.I.D. Exemption Representations

Vanadium-Silica Catalysts and Chromium Hydroxide

The Board of Trade give notice that representations have been made to them under Section 10 (5) of the Finance Act, 1926, regarding vanadium-silica compounds of the kind used as catalysts. Section 10 (5) of the Finance Act, 1926, is as follows:—"The Treasury may by order exempt from the duty imposed by section one of the Safeguarding of Industries Act, 1921, as amended by this Act, for such period as may be specified in the order, any article in respect of which the Board of Trade are satisfied on a representation made by a consumer of that article that the article is not made in any part of His Majesty's Dominions in quantities which are substantial, having regard to the consumption of that article for the time being in the United Kingdom, and that there is no reasonable probability that the article will within a reasonable period be made in His Majesty's Dominions in such substantial quantities." Any person desiring to communicate with the Board of Trade with respect to these representations, should do so by letter addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, London, S.W.1, within one month from the date of this notice (April 30.)

A similar notice has been sent out regarding chromium hydroxide of the kind known as Guignet's green, the date being May 2.

German Exports of Nitrogenous Fertilisers

Exports of nitrogenous fertilisers from Germany in 1927, the bulk of which were produced by the I.G. Farbenindustrie at the synthetic ammonia plants located at Leuna and Oppau, were valued at $54,000,000. The present plans of the German nitrogen industry include increased output at Leuna, especially of nitrate nitrogen; new production in the Ruhr Valley at the Rauxel plant operated by Wintershall and Klockner, and at Sodingen (Westphalia) by Hibernia. The growth in the German export trade during the past four years is as follows in metric tons:—

	Sodium Nitrate	Potassium Nitrate	Ammonium Sulphate	Ammonium Sulphate-Nitrate, Urea, Calcium Nitrate
1924	7,964	11,740	104,354	—
1925	15,428	16,290	344,380	11,762
1926	27,929	13,107	464,065	126,076
1927	60,276	21,243	669,880	268,504

The major foreign markets for German ammonium sulphate in 1927 were: the Netherlands, 176,536 tons; France, 170,441; Japan, 81,673, and Spain, 79,044. The Netherlands and the United States were the important consumers of "ammonium sulphate nitrate, urea, and calcium nitrate," with shipments registered at 66,739 tons and 65,970 respectively. Shipments of this group to Egypt comprised 24,452 tons and to Denmark 23,215. German exports of sodium nitrate, which may include some of the Chilian product, were sent to Russia, 23,239 tons; France, 14,721; United States, 5,189; Czechoslovakia, 2,708.

Institute of Chemistry Exhibition of Industrial Films

Under the auspices of the Institute of Chemistry (Birmingham and Midlands Section) a display of industrial films was given on Friday night, April 27, at the Midland Institute, Birmingham. Professor A. R. Ling presided, and introduced Mr. R. B. Pilcher, Registrar of the Institute of Chemistry, who gave a short address on the aims of the institute, and of chemists in general. His main theme was the importance of chemistry in our industries and everyday life. It was necessary, he said, to stress the importance of the work of the chemist, which, though not so obvious as that of the engineer or architect, was absolutely essential to the well-being of the community. The films shown illustrated work based upon chemistry and engineering. A film dealing with the Oxford University Press served as a reminder that the chemist was concerned with the type metal, paper, inks, lubricants and oil. Another film illustrated the refining of crude oil. The importance of chemical fertilisers was illustrated in a film depicting the manufacture of nitrate of soda from Chilean caliche, and its use in agricultural England.

Company News

BELL'S UNITED ASBESTOS CO., LTD.—At an extraordinary general meeting on April 27, the resolutions that the capital of the company be increased to £1,250,000 by the creation of 500,000 shares of £1 each were unanimously agreed to.

ASSOCIATED LEAD MANUFACTURERS.—The report for the year ended December 31, 1927, states that the trading profit amounts to £73,230. After deducting interest for the year on secured notes, etc., less interest received, there remains £61,098. The following allocations in the accounts of the subsidiary companies have been made by the directors. Goodwill and processes, £6,513; preliminary expenses written off, £3,487; while base stocks have been written down by £25,000. To the balance of £26,098 is added £50,213 brought forward, making a total of £76,311. Of this amount the dividend on the preference shares absorbs £46,249. No dividend is proposed on the ordinary shares, the balance of £30,061 being carried forward. The profit for 1926 was £65,079, and no dividend was then paid on the ordinary shares.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

BITUMENOUS MATERIALS.—The President of the Municipal Commission of Lourenco Marques has issued a call for tenders, open until May 22, 1928, at 5 p.m., for the supply of 240,000 litres of bituminous material for over-casting the streets in the town in accordance with the specifications which are available to enquirers in the office of the Secretary of the Municipal Chamber. Local representation is necessary. (Reference B. 4387.)

CHEMICALS AND DRUGS.—A firm in Hamburg with connections amongst local exporters desires to represent, on a commission basis, British manufacturers. (Reference No. 403.)

Tariff Changes

UNION OF SOUTH AFRICA.—The Exchange Dumping Duty on asbestos cement sheets and cement has been withdrawn.

DENMARK.—The Tariff Amendment Bill, which affects the duties of many chemicals, has been passed by the Legislature. Details are contained in the *Board of Trade Journal* for April 26, 1928.

ECUADOR.—Consequent upon the establishment of a Salt monopoly, the import of foreign salt into Ecuador is prohibited, but an exception is made in the case of refined salt, which may be imported pending the erection in the country of a refinery.

UNITED STATES OF AMERICA.—The duty on precipitated barium carbonate has been increased from 1 cent to 1½ cents per lb.

The Budget and Low-Temperature Carbonisation

COLONEL W. A. BRISTOW, managing director of Low Temperature Carbonisation, Ltd., stated in an interview that the preference given in the Budget to British-produced oil from coal was calculated to tip the balance in the case of scores of colliery companies and the great industrial concerns which had been waiting for assurance of commercial success before they embarked on the installation of coal distillation plants. His company had recently made arrangements for the erection of a few of the contemplated new plants in this country, and those actually at the pit head would naturally be in a favourable position and the first to operate. They would immediately establish a large organisation to deal with a great increase in the volume of business.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks, and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to June 2, 1928.

PLANESOL

486,986. Class 2. Disinfectants. May and Baker, Ltd., Garden Wharf, Church Road, Battersea, London, S.W.11; manufacturers. December 20, 1927.

LEVISSIMA

488,882. Class 1. Magnesia for use in manufactures, photography and philosophical research. The Washington Chemical Co., Ltd., Station Road, Washington Station, County Durham; manufacturers. February 26, 1928. (To be associated, Section 24.)

ADRONOL

489,610. Class 1. Chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. I.G. Farbenindustrie Aktiengesellschaft (a Corporation organised according to German laws), Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers. March 17, 1928.

FERRACLEANOL

487,277. Class 1. Chemical substances for use in connection with the pickling of metals. Julius Cato Vredenburg, 2 and 3, Charterhouse Square, London, E.C.1; manufacturer. January 4, 1928.

ARA

487,207. Class 1. Chemical substances prepared for use in the manufacture of leather. Röhm and Haas, Aktiengesellschaft (a Joint Stock Company organised under German law), Weiterstädterstrasse 42, Darmstadt, Germany; manufacturers. January 2, 1928. (To be associated, Section 24.)

Aluminium Industry in Spain

THE first aluminium works to be opened in Spain is about to be started at Sabiñanigo, in the Pyrenean province of Huesca (states the Madrid correspondent of the *Times Trade Supplement*). The initial output is to be 1,500 tons of raw metal per annum, which is equivalent to the whole of Spain's present consumption. Sixty Soederberg furnaces are employed in the process of manufacture, and these are capable of increasing production up to 6,000 tons yearly. The capital of the Sociedad Aluminio Español, S. A., is 3,000,000 pesetas (about £90,000), and its object is to make Spain entirely independent of foreign imports, for which purpose tariffs protection is expected. Sabiñanigo is situated on the first of the three new Pyrenean railways, that through the Canfranc tunnel, which will be opened to service next June.

Iron and Steel Safeguarding Meeting

THE extension of safeguarding to embrace the iron and steel industries will be discussed at a meeting to be held at the Royal Albert Hall on Tuesday, May 15, at eight o'clock, under the chairmanship of Sir Robert Horne, M.P. Brigadier-General Sir Henry Page Croft, M.P., will detail the scheme of the Empire Industries Association, whereby it is maintained that 500,000 unemployed can be absorbed in industry. Admission to the meeting is free by ticket (numbered and reserved) from Mr. C. Cooley, 71, St. Stephen's House, Westminster, S.W.

Ammonia Synthesis in Turkey

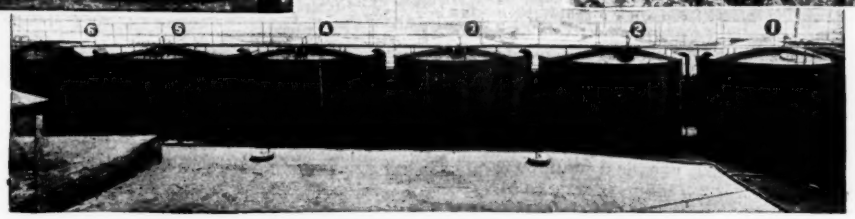
IT IS REPORTED IN PARIS that the Turkish Government has arranged with a French concern for the construction of a hydro-electric plant to generate 100,000 horse power, the energy to be used in the synthesis of ammonia.

Protecting moderate size oil storage tanks

The Foamite Generator System

[Patented]

The standards which form the basis for determining the efficiency of the various parts which go to make up the Foamite Generator System have been firmly established by long successful servi e records in actual working conditions.



IN the Foamite Generator System, Firefoam is produced with the Foamite Foam Generator by introducing Foamite Generator Powder into a stream of flowing water. The Generator is located at a distance from the burning tank, and the Firefoam is carried to the tank through fixed piping and is discharged on to the burning liquid from a discharge chamber that is fastened to the tank.

The operation of this system is simplicity itself. A hose connection is all that is needed from the water supply to the inlet side of the Generator, which is set up near the Generator Connection Stand. Another length of hose connects the outlet side of the Generator to the Generator connection leading to the burning tank. The Generator is then operated in the usual manner. Genuine Firefoam is thus discharged on to the surface of the burning oil in adequate quantity and at correct rate of flow through a discharge chamber similar to those used so successfully with the Foamite (Two Solution) Systems.

Full particulars of the Foamite Generator Installation, which dispenses with the large solution storage tanks, can be obtained from Foamite Firefoam Limited, 55–57 Great Marlborough Street, London, W.1.

Foamite Fire Protection

A Complete Engineering Service

Against Fire

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

LEEDS CHEMICAL CLEANING WORKS, LTD., Waterloo Mills, Bramley, Leeds, chemical cleaners. (C.C., 5/5/28.) £19 4s. 10d. March 21.

NAGAI, Tomisaburo, 385, City Road, E.C., tooth paste maker. (C.C., 5/5/28.) £102 18s. 3d. February 28.

RUDLAND, P. H., 43, Pemberton Gardens, Upper Holloway, chemical buyer. (C.C., 5/5/28.) £28 14s. 9d. March 16.

Mortgages and Charges

*[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]*

GRANCRETA CO., LTD., Leeds, chemical manufacturers. (M., 5/5/28.) Registered March 17, £200 mortgage to Mrs. C. Bolton, 33, Cliff Mount, Leeds; charged on Woodcrest, Copgrove Road, Potternewton. *£1,197. September 30, 1927.

MARKHAM SONS AND CO., LTD., Derby, animal medicine manufacturers. (M., 5/5/28.) Registered April 20, £1,500 2nd mortgage to C. S. Markham, Hillside, Derby Road, Wirksworth, manufacturer; charged on Agard Street Mills, Derby. *£2,000. February 21, 1927.

Satisfactions

CHARLES (EDWARD) AND CO., LTD., Nottingham, bleachers, etc. (M.S., 5/5/28.) Satisfaction registered April 21, all moneys, etc., registered September 25, 1912.

MALONEY (C. E.) AND CO., LTD., Gillingham (Dorset), soap manufacturers. (M.S., 5/5/28.) Satisfaction registered April 18, £1,000 (not ex.), registered April 22, 1922.

London Gazette, &c.

Order Made on Application for Discharge

PICKLES, Robert Henry, Prussiate Works (also known as Manganese Mills), Droylsden, Manchester, trading as R. H. PICKLES AND CO., chemical manufacturers. (O.M.A.D., 5/5/28.) Discharge suspended for two months until March 22, 1928.

Receivership

HUNT (JARED TERRETT) AND SON, LTD. (R., 5/5/28.) E. Turner, of 32, Queen Victoria Street, E.C., was appointed receiver and manager on April 13, 1928, under powers contained in certain debentures dated October 14, 1927.

New Companies Registered

CHROMIUM AND NICKEL PLATING CO., LTD., 32, Rosoman Street, Clerkenwell, London, E.C.1. Registered April 21. Nom. capital, £100 in 1s. shares. Metal platers in chromium, nickel, copper, silver, etc.

GRASSMOOR CO., LTD. Registered as a "private" company on May 1. Nom. capital, £100,000 in 5s. shares. The objects are to acquire the whole or any part of the undertaking, property, assets and liabilities of the Grassmoor Co., Ltd. (incorporated in 1884), or all or any part of the issued shares, and to carry on the business of colliery proprietors, coke oven and bye-product proprietors; manufacturers of benzol, sulphate of ammonia, naphthalene and all products resulting from the coking or distillation of coal, manufacturers of chemicals and manures, etc. A subscriber: I. W. Lamonby, Herne House, Hasland, Chesterfield.

NEW PROCESS CARBON BLACK CO., LTD.—Registered April 28. Nom. capital, £1,000 in £1 shares. To enter into an agreement with the New Process Carbon Black Co., Inc., of Monro, Louisiana, incorporated under the laws of the State of Delaware, and to carry on the business of manufacturers and importers of and dealers in carbon black and similar substances or any substitutes therefore or compounds thereof, dealers in rubber substitutes, ingredients for use in connection with rubber and rubber substitutes, and generally any material likely to be required by the manufacturers of and dealers in rubber tyres and goods, gramophones and records, printing ink, grate polish, paint and other goods, chemical manufacturers, wholesale druggists, drug grinders, etc. A subscriber: H. J. Fellows, 25, Walsingham Road, Clapton, London, E.5.

STANDARD SOAP CO., LTD.—Registered April 27. Nom. capital, £25,000 in £1 shares. To acquire the business of manufacturers, pharmaceutical, etc., chemists and druggists, previously carried on at Ashby de la Zouch, Leics., by a company bearing the same name as this company, to adopt an agreement with A. McMeekin and to carry on the said business and that of manufacturers, refiners and preparers of and dealers in all kinds of oils, and oleaginous and saponaceous substances, and all kinds of unguents. A subscriber: R. Harris, 23, Rectory Grove, Clapham Park, London, S.W.4.

English China Clays' Annual Meeting

THE annual general meeting of English China Clays, Ltd., was held in London on Friday, April 27, Mr. R. Martin (chairman and joint managing director) presiding. He said that the profit and loss account showed a profit for the year of £77,600. The directors recommended the payment of a dividend of 1½ per cent., making 3 per cent. for the year, on the ordinary shares, transferring £5,000 to general reserve, leaving £15,974 to be carried forward. The only hope for the future prosperity of the trade lay in combination, either by means of complete financial amalgamation or by means of the newly constituted Associated China Clays. With regard to the latter, they welcomed its resuscitation, and would give it their loyal support; but they could not close their eyes to past experience, and with that in view they were steadily pursuing their policy of acquiring such other properties as would strengthen their position. The report and accounts were adopted.

Calcium Biphosphate Inquiry to be Resumed

THE referee having recovered from his recent illness, the hearing of the complaint that calcium biphosphate (baking powder quality) has been improperly excluded from the lists of articles chargeable with duty under Part I of the Safeguarding of Industries Act, 1921, will be resumed at 11 a.m. on Wednesday, May 23. The hearing will take place in the main conference room, Board of Trade, Great George Street, Westminster, London, S.W.1, and will be continued, if necessary, on the following two days at the same hour.

Benn Brothers' Other Journals

THE CABINET MAKER.—The Preservation of Craftsmanship; Exhibition of Antiques at the Grafton Galleries; Kitchen and Domestic Equipment.

THE ELECTRICIAN.—"The Singapore Floating Dock," by Ernest T. Williams; Overhead Line Regulations; "What's Wrong with Electrical Cooking Equipment?" by C. Sylvester.

THE FRUIT GROWER.—"Rating and Valuation Law," by "Barrister"; Ghent International Show; Reform in Marketing.

GARDENING ILLUSTRATED.—Early Flowering Tulips; Carnations for Fragrance; Daffodils in Cornwall.

THE GAS WORLD.—The Prime Minister's Visit to Stoke-on-Trent Gas Works; Spring Meeting of the Wales and Monmouthshire Institution of Gas Engineers and Managers; The Education Scheme of the Institution of Gas Engineers.

THE HARDWARE TRADE JOURNAL.—Simplification in the Hardware Industry; Merchandise Marks: The Recommendation on Baths; The Tin Plate Industry's Bi-centenary.

THE TIMBER TRADES JOURNAL.—A Review of Swedish Timber Production and Exports; Developments in Plywood Markets; Transport: Views on the New Petrol Tax; Sawmill: Taking Dust from the Sander.